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EDITORIAL.

SANITATION A CHECK TO THE EVOLUTION OF IMMUNITY.

It is now apparently accepted as a fact that when an infectious disease has afflicted a race very many centuries or milleniums, it produces an immunity or tolerance. The most susceptible die in each generation and the least susceptible survive—a process which in time renders all resistant by the ordinary laws of survival. In certain cases another process may take place, and the more virulent strains of bacteria perish as they kill too quickly to permit the transmission to a new host. In the meantime there is a period when the disease is fatal only to children, for all adults who have survived the disease in childhood are immune—the condition as to smallpox in those tropical countries where it is endemic and vaccination is unknown. Adults have no personal dread of the disease for they see that it kills only the babies. Later, the disease appears in frequent epidemics in which nearly all the victims are children, and this was the state of affairs in England before Jenner stopped the evolution of immunity which was so surely being produced. The susceptible are now all preserved, and if vaccination is neglected for a long time the mortality of the first epidemic is much higher than in pre-Jennerian days for the disease finds more non-immune adults.

It now appears that identical processes have been going on as to yellow fever in Cuba. Prior to the Spanish war the disease was endemic and every one was liable to get it in childhood, to survive or perish as his resistance was great or small. Adults were nearly all immune, if not all of them, and they actually resented the sanitary means taken to end a disease which was only fatal to children, and in them it was frequently unrecognized. The only adults who perished were non-immune Europeans and Americans who resided in the large seaboard towns.

The discovery of the mosquito transmission of the infection has had almost identical results that Jenner's discovery produced in smallpox. The sanitary warfare in Havana and the larger towns practically wiped out the infection as that is where the non-immunes were keeping it

going. The interior was immune as to the adults, and as there was now no infection being carried to the children, quite a large non-immune population grew up in the succeeding years, both among the native children and adult immigrants, and these are now scattered all over the Island.

The infection has been repeatedly introduced from Central and South America, and though it was at first easily subdued at the seaboard, some mild unrecognized cases have slipped through carrying the organisms into the interior where an increasingly large non-immune population is keeping alive—a condition of affairs far different than in the old Spanish days. The facts have only recently been realized by the sanitary authorities who have been chagrined at their failure to do what was done so successfully in 1901 when only the seaboard towns harbored the infection. (Report of Provisional Administration, by Gov. Magoon).

This scientific medical matter is bound to have far-reaching political effects. The longer the present sanitary war is kept up and the more successful it is, the larger will be the non-immune population, so that when infection does enter, the mortality rate will be as high as in the lower Mississippi valley where there are but few immunes. Consequently it will be necessary to wage a warfare of constantly increasing expense and effectiveness, if the disease is to be kept in check and not be a menace to America. The Cuban treasury cannot stand the expense and the question now confronts this nation as to whether in its own interests it will not be compelled to keep permanent control of the sanitation of Cuba. There are rumors that foreign governments are hinting that we should continue control to protect European investments and it is quite likely that they will also hint that we should also keep yellow fever out. In other words the discovery that a mosquito transmitted yellow fever, may determine the permanent union of the two countries.

ON THE ADVANTAGES OF A JUST CRITICISM OF BAD BOOKS.

To dismiss with scant notice a book because it has all the insignia of a flaunting badness is a remissness, on the part of a critic of literary and medical works, that merits condemnation from the discriminating among us, who have at heart the advantages of the educative factor as it pertains to criticism. If it is true, as Mr. John Churton Collins, the English critic, says "that every bad book stands in the way of a good one," it is easy of comprehension that a perfunctory criticism of the former is inadequate as a means to the end which all good criticism should have for its goal—a thorough exposition of a subject so that even the least critical among us may benefit by a full knowledge of an author's defects.

By bringing before those who read not wisely but too well, in other words, indiscriminately, the full measure of an author's sins of commission, a bad book would be made to fall much sooner than can possibly be done by a curt notice which only too often betrays a prejudicial spirit and an impatience of the mediocre—qualities which should be foreign to the critical faculties of any arbiter of what constitutes the educated judgment of literatures.

Of all literatures which have suffered most at the hands of critics whose equipment for their individual work leaves much to be desired, medical literature can lay claim to the worst offenders. Just why a limited amount of scholarship, a fair quota of the critical faculty, the mental equipoise of the well-read man, and that urbanity without which no individual can make for much as a critic, are not the weapons for good in the armamentarium of the writers on our medical press, passes comprehension. That some of these desirable qualities are part of the varied mentality of the majority of physicians as evidenced in the sick-room, goes without saying, and though it be true that their activity in the circumstances just indicated is of so exalted a nature that comment is unnecessary, directly one or another doctor, though possessed of acumen, perspicacity and judgment, puts his thoughts on paper anent the worth and value of a medical publication, the performance is, with rare exceptions, the sort that a tyro, hampered by prejudices and selfishness and unarmed with arguments, would be guilty of. Of course we cannot expect of writers on our press the profundity of a George Brandes, the vivacity of a G. K. Chesterton, or the literary audacity of a Churton Collins, but are we asking too much when we demand of our literary guides that amount of verbal luxury which would give the ply to criticism so that those members of the profession, whose readings outside the narrow one of a few text-books is now supplied by popular books of a bastard scientific origin, would be sufficiently benefited to differentiate between a good and a bad book?

Voltaire in an account of Bayle says: "Des Maizeaux a écrit sa vie en un gros volume; elle ne devait pas contenir six pages" (Des Maizeaux has written his life in a large volume; it ought not to occupy six pages) and though this criticism is without rival for succinctness and pithiness, and stands apart from all criticism because of its impeccable perfection as regards a directness which is due to what one might call, one swashing blow, it neglects to enlighten us as to why we should cold-shoulder the production. And therein it fails in its critical mission, for though upon reading it we are moved to mirth because of "the sharp, well-mannered way of laughing a folly out of countenance," the worthlessness of the book, which should have lent itself to columns of harsh

criticism so as to warn others against reading it, seems to afford but an incentive to the mordant wit of a man of extraordinary talents. We make no doubt that this sort of criticism is well in its way and deserving of praise; nevertheless we cannot refrain from decrying similar attempts at brevity in our medical journals—we need not mention the wit for that is never a troublesome attribute of the critics we have under consideration,—for the reason that they but proclaim the extraordinary vacuity of the mentally stultified.

It is a commonplace of observation that bad books—we mean the unscientific and the poorly written ones—like bad persons, should not arrest our attention for long. This is an intellectual caprice that has an especial appeal for the inadvertent. Antolycus to be made known, either to the literary or medical public, must not be slighted, for the judgment of thousands is so low that without warning of the substantial sort, minute and argumentative, his deeds may shine alongside those of the most honorable man. Macaulay did not hesitate to devote some of his most brilliant pages to a poetaster by the name of Montgomery; and the world knew at once, from the fullness of the scathing criticism, the true status of this false aspirant after literary honors.

In the light of the good that may be accomplished by the methods pursued by the best literary critics of to-day, it remains to add, that so soon as the critics of medical books will recognize the import of their office, the evil that negligence of their duties as literary advisers entails and the harm done good books by scant attention to the bad ones, we shall find the same appreciation of classical medical works among doctors which now obtains among the educated in other walks of life.

DUST AS A FACTOR IN OCCUPATION MORTALITY.

It not infrequently happens that statisticians are unable to draw safe conclusions from their own figures. The reason for this apparent paradox was pointed out long ago by Herbert Spencer, who showed that scientists are divided into two distinct classes,—those who gather facts, and those who co-ordinate facts from different observers to formulate generalization. The former are like microscopists who have a distinct view of the finest details of a little sphere, while the latter have the telescopic view of many spheres but no detailed knowledge of any. The history of the sciences is one long repetition of great laws discovered by men who had taken no part in the collection of the statistics of the facts discovered by the delvers. Medical science in particular has had painful experience on one hand of the sad generalizations of specialists unable to see the importance of other facts than their own, and on the other hand the crude ideas of many a general practitioner in relation to the

importance of specialties. The chronic warfare between the two, though quite natural, is unseemly and avoidable.

Statisticians are middle men serving both classes of specialists and generalizers, and before acceptance, any opinions expressed must be subjected to most careful scrutiny by both. These facts are beautifully illustrated by an amazingly misleading article on "Dust as a Factor in Occupation Mortality," by Mr. Frederick L. Hoffman, the famous statistician of the Prudential Insurance Company (The *Medical Examiner,* Dec., 1907) who draws conclusions unwarranted by his figures and in some respects the direct opposite. There is no doubt of course that dust causes diseases as well as carries infection, but that its importance has been unduly exaggerated and other factors ignored is shown by the fact previously reported by Hoffman that while stone-cutters have a mortality of 43.1 per cent., the same workmen underground—miners—have a mortality of only 6.4 per cent. His article is based upon the percentage of deaths from tuberculosis among certain workmen exposed to dust as compared to the percentage among all trades which is called the "expected."

For instance, he mentions the alleged fact that one-third of New York's street cleaners have tuberculosis, yet his figures show that only 19.3 per cent. of their deaths are due to it, as compared with 22.2 per cent. expected. To be sure there is an excess of deaths at certain ages, but the deficiency is greater at certain others, so that on the whole they show less mortality. In the same way the deaths among teamsters is 25.9 per cent., the slight excess over the average being fully explained by the fact that poor health or failure in other callings often forces men into that occupation, yet even here his percentages do not correspond with his numbers, for he reports 999 deaths as compared with 1049.3 expected, as though teamsters were less susceptible. The same may be said of motormen among whom 99 died as compared with 99.75 expected, yet he reports a percentage of 30.7 as against 22.2 expected. Among conductors also there were fewer deaths than expected, though letter-carriers show a slightly excessive mortality probably due to the fact that they do not spend all their time in the open air, but in dreadfully ventilated postoffices. Bookkeepers of course show a marked increase over the average, but to ascribe that to dust which is not marked in offices, and not to the confinement in hot ill-ventilated rooms is absurd. Janitors who are not confined to bad air all the time show a much less mortality than the average, and even moulders have very slightly higher rates in spite of the dust and indoor labor, while cement workers have much less mortality. On the other hand plasterers and paper hangers who spend most of their time indoors have an unduly high rate.

Hoffman's paper should have been used to prove the advantage of out

door life, and show that dust though an injury to health is greatly overestimated. Perhaps "knife-grinder's rot" will prove to be in part at least a confinement disease. It is doubtful if statistics were ever put to greater misuse, for they minimize the necessity for perfect ventilation for indoor workers and the great advantage of an outdoor life in spite of its dustiness here and there. Indeed the black lungs of persons who have lived in a smoky atmosphere show that these organs can stand an enormous amount of such abuse if the general health is maintained. We must have clean dustless streets and can abundantly prove their necessity, but exaggeration of a danger begets a contempt which defeats the purpose in view.

THE CAUSES OF NEURASTHENIA.

Overwork and tissue starvation as causes of neurasthenia have been discussed for many years, but their relative importance is of recent knowledge. Dr. Robert N. Willson, of Philadelphia, deserves the highest commendation for his bravery in combating the prevalent professional opinion which gives the greatest weight to the factor of exhaustion from "overloading." His article (The *Amer. Jour. of the Med. Sciences*, Feby., 1908) really marks an epoch, for he calls attention to the fact that the basis of nerve weakness is starvation of all the tissues as well as the nerve cells. The symptoms are the cry of weakness and a variety of hunger. There are many things which interfere with nutrition and the diagnostician must find out which particular ones exist in each case. The removal of the cause begins the cure, the details of the treatment depending upon the conditions found in each case. Paradoxical as it may seem, tissue starvation may exist even when the patient is over-fed, and a reduction of diet be imperative to induce better digestion. The very fact that neurasthenia is not more frequent among the hard workers than the idle, should have proved to us long ago, that work of itself is not the main cause, indeed the idle seem to furnish more cases than the busy. There is often if not always, an inherited "weakness"—whatever that may be—which enables minor causes to work havoc, causes which are harmless to the normal, but these are always of such nature that they interfere with tissue repair whether there is work or idleness.

This is all a sad blow to the rest treatment which by lessening expenditures is more or less curative even when the causes are not removed. It fully accounts for the prompt relapses when the causes of undernutrition continue. It does seem that though we are in complete ignorance of the underlying pathological changes which have ocurred in the protoplasm, we are on the road to a better idea of their causes. Cure and prevention will then follow as a matter of course. It is certainly

a big step to know that if nutrition is proper, enormous loads are harmless, but if it is defective the least exertion may exhaust. It is well known that overwork is purely a relative term anyhow, and that hard work is usually conducive to health. It would be a strange addition to the numerous medical revolutions of the last two decades, if graduated work would supersede the classical rest treatment, though nothing could be more logical, even if like all new things, it would be savagely condemned by the authorities at first. It might not be wise to "horsewhip every neurasthenic woman into the open air," but as a figure of speech it might be acceptable to call attention to the necessity for firm compulsion of graduated exertion. The proof of the pudding is the eating, and in this case good results have already been obtained. Willson's paper is important to the profession at large, as well as neurologists, for it touches upon a point of wide application. Under-nutrition is looming up large as a cause of many conditions and indeed neurasthenic symptoms seem to complicate every prolonged illness. The only point he seems to have missed is the fact that when there is tissue starvation, it is generally if not always due to deficiency of nitrogen. Every little while some such new evidence is brought to light showing how dangerous is Chittenden's low-nitrogen diet.

ARE CONSUMPTIVE SANATORIA WORTH WHILE?

Since the start of the crusade against tuberculosis, we who are more or less in close proximity to the fight, have had our ears deadened from time to time with the formidable booming of statistical guns. We are all too familiar with the ominous noise that death-rates make when spoken by some of the ardent warriors who are struggling with the white plague, nevertheless each new speaker or writer reaches us with a new appeal in his words. But we feel our inconsequence and ineffectuality quite severely, especially when we realize that some of our own number, members of the medical profession, have had the hardihood to write or speak against the sanatorium treatment of tuberculosis.

Against these, Dr. David Lawson, M. A., F. R. S. E., has most valiantly taken up the gauntlet. In the *Glasgow Medical Journal* for March of this year, he opens his argument with the following: "It is a startling fact that over five millions of our fellow-creatures in the world, and of these over one million in Europe alone, die every year from pulmonary consumption. Richel, comparing those great forces which are destructive of human life, has shown that the popular conception of war leading the van in this respect is an altogether fallacious one. Compared with the ravages caused by consumption the destructive work done by the sword is relatively unimportant. For, taking the great wars of the

nineteenth century as an example, he finds, that while by men's engines of destruction fourteen million combatants were slain, the death-roll from pulmonary consumption during the same time and in the same countries amounted to no less than thirty million persons. You are familiar with the deplorable prevalence of this disease in our own country—a disease which every year cuts off whilst still in possession of their full working power more than one-half the number of those wage-earners who die from all causes put together. And it is not alone the mere number of lives which it accounts for which renders this disease of pre-eminent importance to us, altogether even upon that account far out-distancing as it does all other diseases in the havoc which it works on human life—it easily holds premier position—but exerting a selective affinity it proceeds with conspicuous malevolence to choose as its victims those whom the nation can least easily spare. It is at that age when sentiments ring true, in the early years of maturity, in the full bloom of manhood and womanhood, when the care of the next generation by the parents who have begotten it is most needed, that consumption enters the home and strikes its fatal blow. Nor does the disease confine its attacks to the ranks of the ignorant, the poor and the illiterate. On the contrary, it would almost appear that the possession of exceptional attainments only serve to attract its malignant attention the more. From the ornaments of our own profession, and from the ranks of literature, music and art, we know that consumption has exacted a heavy toll. But for consumption, Robert Louis Stevenson might still be delighting us with his entrancing stories of South Sea mysteries; John Keats might have given us another 'Endymion;' Artemus Ward might even now be engaging our fancy with fresh flights of inimitable humor; Schiller might have given us another 'Song of the Bells;' and Chopin might have dreamed another 'First Polonaise.' Laennec, Spinoza, Purcell and Rachell all died of consumption. And these are but a moiety out of the world's nobility, whose precious lives have been cut off in their prime by the great white plague.

"In the light of these facts the subject which we have met to consider is one which concerns directly or indirectly every loyal citizen in this land, and as a member of a profession whose ideals embrace not merely the cure, but the eradication and prevention of disease, it holds for us a very special interest.

"Within the last ten years, during which the sanatorial movement has been advancing in this country, many conflicting opinions have been expressed from time to time alike in medical and in lay journals regarding the practical utility of sanatoria in fighting this great scourge. The time now appears to be ripe for an open discussion of the subject. It is,

therefore, with the greatest possible pleasure, and with a deep sense of the high honor you have conferred on me, that in response to your kind invitation I appear before you this evening to ask your courteous consideration of a statement of some of the evidence upon which the value of the sanatorial claim rests. Not alone in the realm of pure medicine is to be found all, or even the majority, of facts which go to constitute the apology for the consumptive sanatorium. If, therefore, in addition to the proofs afforded by purely clinical evidence one ventures to cull from historical, sociological, commercial and industrial literature, evidence on behalf of their value, I trust you will bear with me. For it appears to me that only as we approach the subject on such broad lines as these can we expect to obtain in proper proportion a true conception of the subject-matter in hand.

"Thus far we have been concerned in bringing to your recollection the deplorable prevalence of tuberculous disease throughout the world, and in endeavoring to show the reasonableness of its claim in the common interest of humanity on our serious attention. In view of the facts which have been cited, and they are but as a drop in the vast ocean of facts which are available, it is unthinkable that any rational man can be disposed to question the correctness of the thesis that 'the disease is one which ought to be energetically dealt with on systematic and comprehensive lines.' If that is granted, then the importance of that part of the subject with which we are concerned this evening, 'Are consumptive sanatoria worth while?' 'Do they justify their inclusion as weapons in the armamentarium at our disposal for fighting this disease?' will be readily recognized.

"It has been seriously urged in some quarters that a careful consideration of the record of work done by consumptive sanatoria in this country up to this point indicates that a negative answer should be given to this question, and that it has been shown that 'sanatoria are not worth while.' Whilst one cannot admit that this conclusion is warranted by the evidence from which it is drawn, one takes exception to a course of action which restricts the field of observation to so narrow limits, and does not hesitate to form so sweeping a conclusion upon so limited a generalisation as this provides. Rather does one prefer, passing beyond the narrow confines of these insular surroundings, to draw one's evidence from the operation of those great forces which are at work in the larger world beyond, and to avail oneself of the lessons of experience gained in other countries and in other lands. Let me remind you of some of the more familiar arguments by which their detractors have sought to show that sanatoria are unworthy of support."

Dr. Lawson then recites the objections to Tuberculosis Sanatoria, placing them under the following heads:

The Historical Objection, i. e. that the treatment of tuberculosis by proper sanatoria is a fad, and that the method is untried, its value remaining to be demonstrated. The answer to this is that George Bodington, a country physician in Warwickshire, established a consumptive sanatorium in 1840, that Hermann Brehmer started a similar institution in Germany in 1859 and that these two institutions being parents of the idea in England and Germany, soon proved their value, and were followed by successful institutions in all civilized lands that have long since passed the stage of doubt and trial.

The Clinical Objection, i. e. that the results obtained do not justify the existence of sanatoria. In reply to this much statistical knowledge is cited, to the effect that 73 per cent of cases treated at sanatoria were capable of return to working capacity.

The Commercial Objection, i. e. urging that their institutions do not "pay."

After a crushing array of statistics, Dr. Lawson concluded with this paragraph: "No one can ever justly accuse the directors of any insurance company acting in their corporate capacity of being liable to be swayed by emotional interests or by a tender regard for the happiness or welfare of the human race. There is one principle, and one principle alone, which guides them in their business policy, and that principle is how to make most money for their shareholders. When we find such directors deliberately spending millions of capital on consumptive sanatoria, and annually spending hundreds of thousands of pounds in supporting their tubercular clients in such sanatoria, then we are, I take it, justified in concluding that in their opinion at all events it pays better to cure phthisis than to subsidise it, and that in the sanatoria they have the most powerful instrument at their command for enabling them to achieve the end they have in view."

ORIGINAL ARTICLES.

HERNIA—A GENERAL STUDY—ESPECIALLY ITS MEDICO-LEGAL ELEMENTS.

By W. B. Outten, M. D., of St. Louis.

All history indicates that it is almost impossible to make men use at all times the best and most efficient method in progress, particularly if the measure and means of their information and knowledge lack the necessary power and breadth. While it is generally true that mankind never loses any good thing, physical, intellectual or moral, until it finds a better, yet (in this instance) it has been indeed remarkably slow to verify and illustrate it in the history of hernia. Still, the historical description of ancient methods as devised and practiced in the treatment of hernia illustrates that however slow the progress of mankind may be, or how imperceptible the gain in a single generation, the advancement is evident enough in the long run. The analytical psychologist will find when he studies the past history of hernia, many strange and seemingly erratic periods of mental endeavor, where instead of larger and larger comprehension of truth being manifest, almost the reverse occurs.

Again, he (the analytical psychologist) will find a difficult problem when he strives to determine the psychic causes leading to what seems to be at times a complete abrogation of all demonstrable facts, and the eager acceptance of empirical, vagaried and mystical theory, nor can he determine absolutely why the most intelligent surgeons in one period ignored the teachings of a past which indicated the most effective and common place procedure, to accept, seemingly, a procedure bordering upon the idiotic and inane.

Celsus, nineteen centuries ago, formulated precepts in the treatment of hernia which cannot be much improved upon even now. He intelligently indicated the age most favorable to success and lucidly described various modifications of treatment in different types of this trouble. He gave explicit directions as to the seat of incision, how to resect the sac, how to cut away the omentum, and char the stub of the cut surfaces with hot irons. He gave positive and forcible directions how to guard against injury to the elements of the cord or testis. History avers that this famous surgeon operated many times with successful results. Compare this treatment of Celsus with treatment used in the beginning of the nineteenth century when the radical cure of reducible hernia by operative methods had been definitely abandoned. At this time medicated trusses possessing marvelous healing powers were used. John Dubois gave to the world his plant which had wonderful and unique properties, and which came from a cyprus tree. Verdier (1818) radically

cured hernia with pills of muriate of mercury. In these days there were even advocates of the ginseng keon-ki Chinese radical cure for hernia; the patient was restricted to a diet of rice, bread, water, along with sheep's kidney, while the ginseng keon-ki was applied to the hernia, and it is said that patients got well in six days. Guy De Chauliac of the fourteenth century not only gave precise methods for the radical cure of hernia, but indicated appropriate cases, spoke intelligently of their dangers and the results obtained. Influenced by his surroundings he, too, possessed a secret preparation which he alone knew and which he alone could prepare, and which was administered by him with a great deal of mummery and peculiarity. He placed his patient upon his back, put a metallic plate over the hernia, then this was firmly compressed by bandage. He then dosed his patient with his favorite powders in order that the violent attractive power they possessed for the metal would draw the hernia upward into the abdominal cavity.*

The stories of surgeons who used caustics, chemical compounds and thermal agents were indeed numerous and include such names as Lanfranc, Theodorus, Crevez, Pierre, Master Methius, a Swiss operator who liberated the cord, divided the sac and used a gold suture to seal the internal ring. In 1855 hernia operations again came in vogue, and many procedures were devised by Valpeau, Leroy D'Etoilles, Bonnet, Malgaigne, Mayor, Guerin and Thierry. It should be mentioned in passing that these surgeons confined themselves to the inguinal variety mainly. At this time in England and Germany operations for reducible inguinal hernia were not popular. In 1865 Wood, of England, commenced treatment of hernia by invagination. Heaton, of Boston, a quack doctor, attained a great notoriety by curing hernia with subcutaneous injection of quercus alba. Twenty-five years later Schede, Nussbaum, Czerny, Reisel, Socin, having anesthetics and antiseptics at their command, began the treatment of many cases of reducible hernia by operative procedure. At this period in France, Championniere was the first to treat reducible hernia by operation to any great extent. Spencer Wells, Redfern Davies, of England, Wutzer of Bohn, Rothmund of Munich, treated many cases by invagination of scrotum. The first surgeon who recommended and practiced the preservation of the sac was Heistel. According to Valpeau, Garangeot and Steffens dissected up the sac and then folded it into a pad and pushed it into the canal as a plug in all operations for strangulated inguinal hernia. This same procedure has been followed out by Professor McEwen of Glasgow, the only difference between McEwen's procedure and Garangeot was in epiplocels, instead of the sac he employed the omentum to block the passage.

It would indeed be marvellous and almost impossible to find more erratic and inane treatment in the history of surgical treatment of any

*Other topical applications, as the white of an egg for a vehicle, crushed nutgalls, antimony, yellow amber, etc. On a certain species the following mixture was supposed to possess great value: Turpentine, litharge, the feces of eagle freshly toasted, human blood and the hair of a ram, all blended together in rain water and vinegar.

condition equal to that detailed concerning the history of hernia. It certainly requires unusual thought to conceive how it was possible for surgery to be placed entirely in the hands of empirics, what process of reason could make intelligent men ignore every element of past history and accept a position as regards to surgery which could not be defended by any element of reason or common sense. Brunus speaking of this period says "that the greater part of those who practiced surgery were rustics, gabbing fools and mouthing imbeciles, that evil, vile, depraved, presumptuous and fearless women were strenuous devotees of the hernial art, while such surgeons as Lanfranc never opened the abdomen for ascites, would not operate for hernia nor cut for stone. These were the days when castration became so frequent as to demand imperial edicts against it. Balesere de Taranta castrated for leprosy and Peter of Borsia castrated for simple hydrocele. What was the condition of thought amongst the medical fraternity which advised Louis XIV. to purchase at a high price from Prior Cambrieres a secret remedy. This royal remedy had to be kept secret until the death of the Prior and which turned out to be the nitrate of potash dissolved in spirits of wine, and which was taken for twenty-four days while an astringent plaster was applied over the hernia.

George I. of England seems to have had similar thoughts to Louis XIV. Finding so many men of his army with hernia he gave to Little John 5000 pounds and a pension of 500 pounds for his method for the radical cure of hernia. Little John's method was one which any farrier might be proud of, for he scarified over the sac, applied vitriol and pressure. He operated unsuccessfully on one patient three times and finally finished in the most brilliant and agonizing manner by creating a slough of the scrotum and necrosis of the testis. Tramp operators for hernia castrated so generally in the middle of the eighteenth century in Holland, that the authorities ordered any one publicly lashed who operated without special permission.

In France, one Robert de Housse was sentenced to three years servitude in the galleys for ligating the spermatic cord in ten cases, and the result being a mortification of the testis.

Again, Mary Ann Presse of Rheims was publicly castigated and imprisoned for seven years for castrating four herniated infants, whose death followed in each case.

We have thus far given an epitome, and somewhat desultory history of hernia, but space will not permit a more extended and scientific account. What has been said will confirm our contention that the historical description of the ancient method devised and used in the treatment of hernia, were undoubtedly influenced by existing compelling suggestion. Strange lapses of thought and non-consideration of past results of treatment and the uninterpretable reason why surgeons sensible in all other things pertaining to surgery, would, in hernia, ignore an effective, common sense method, to adopt what experience has shown was akin to the inane and impractical.

How natural it is for us to wonder that a man so wonderfully ob-

servant, effective and practical as Percival Pott, should get into such a prejudiced mental state as to think that every one who undertook a hernial operation, unless life was threatened, ought to be hung. Why Sir Ashley Cooper in his lengthy career operated on nothing but strangulated hernia, and generally disproved of all other operations. Why such men as Lawrence Bichat, Scarpa, Beaumont, Schumacher, and others, only operated in certain rare cases, and the wonder increases when we see how effectively Boyer could by his writings so influence the surgical world as to relegate the scalpel and needle to nonuse and to exalt the modus operandi of truss action.

Leaving the wonderfully varied and interesting history of hernia to others to delve in, this brings up to the existing status of modern operative methods. That this may be placed in an effective light we will quote from Manley,[1] who says: "In order that a reasonable estimate may be made of the precise or approximate value of the numerous modern operations which have been recently alternately altered, severely criticised or condemned, and with a view of according to each its just merit and demonstrating their defects and short-comings, a brief notice of a few of the more common and popular will be described here. For the purpose of reducing their description to a simple analysis, they may all be divided into:

1st. Those in which the sac is ligated at the external ring and permitted to remain in situ.—Reisel.

2d. Those in which the sac is freely and completely dissected, the canal in inguinal hernia divided from the external to the internal ring, the sac ligated and cut away, the parts again closed in, layer by layer.—Championneiere.

3d. Those in which essentially the same steps as in the preceding are carried out but the divided inguinal canal is kept open and the healing is by granulation.—McBurney.

4th. A complete detachment of the sac from its adhesions and its utilization as a plug to serve as a barrier against relapse.—McEwen.

5th. The isolation and section of the sac and its excision at the internal ring; splitting the internal ring and lifting the spermatic cord entirely out of the inguinal canal; then wholly obliterating the canal by tendinous approximation.—Bassini.

The writer trusts that he will be excused from quoting rather extensively concerning the merits of the Bassini method for the radical cure of inguinal hernia. This excerpt is taken from a paper under the title of "Report of Two Thousand Operations for the Radical Cure of Hernia—Performed at the Hospital for Ruptured and Crippled, from 1890 to 1907," by Wm. T. Bull, M. D., and William B. Coley, M. D., New York City.

"The year 1890, the beginning of this series of cases, marks an important milestone in the history of the radical cure of hernia. This was the year that Bassini's epoch-making paper describing his methods for the radical cure of inguinal hernia was published in the *Archives f. Klin. Chir.*, giving additional report of the results in 261 cases. Halsted's

method, in many points similar to Bassini's, had been briefly described in the first number of the *Bulletin of the Johns Hopkins Hospital*, 1889, although Bassini's has been published in an earlier paper read before the Italian Surgical Society, 1888.

"But it was not until 1890 that the two methods were prominently brought before the profession. Prior to this time, beginning with Steele's first operation for the radical cure of hernia in 1874, Czerny's in 1877, Marcy's in 1878, one method after another had followed in rapid succession. While the immediate results of some of these methods were very good, particularly in the hands of their originators, the sum total of results was far from satisfactory and there was in 1890 a strong tendency on the part of the more conservative surgeons to regard with doubt the claims of any of the methods to the designation 'for the radical cure of hernia,' for the reason that the statistics of the most reliable sources showed a proportion of from 30 to 40 per cent of relapses within the first year. In addition the risks of operation for hernia at this time were by no means to be ignored. Four of the largest hospitals in London in 1890 showed a mortality of 6 per cent. The enthusiasm for the radical cure of hernia was beginning to wane when the methods of Bassini and Halsted were published.

"The two methods differed in several important points. In Halsted's method the cord is transplanted more externally so that it lies just beneath the skin and superficial fascia, whereas in Bassini's operation the cord is covered by the aponeurosis of the external oblique as well as the skin and fascia. The most important difference, however, is that in the Halsted method the internal oblique muscle is cut upward from one to two inches before it is sutured to Poupart's ligament. The results of operation have shown this step to be entirely unnecessary. In many cases, we believe, the cutting of the internal oblique greatly increases the chances of recurrence and weakens the very structure we must rely most on for radical cure. Another point of difference is the resection of all but one or two veins of the cord. Here again the results of the method, showing atrophy of the testicle in a considerable proportion of the cases, have proven its disadvantage.

"The unquestionable superiority of Bassini's method to the earlier methods, as well as to those since devised, is shown by the fact that this operation with slight modification is to-day the operation of choice in practically all the clinics of the world. The secret of the success of Bassini's operation, we believe, depends largely on the fact that it was the first operation in which the attempt to cure the hernia was based on a true appreciation of the etiology of hernia."

The object of this paper is to consider mainly inguinal hernia, and more particlarly to consider the verity of Kingdon's assertion, and its medico-legal bearing, when he says "That hernia is a disease, and not an accident; that it is a pathologic condition and not merely a mechanical lesion."

Regarding the frequency of hernia, while it may be an interesting point, it is not especially relevant or vital to the object of this paper.

Mansel Moullin,[2] states "that owing to the frequency of the congenital inguinal variety hernia is met with very often during the first years of life, and at this time is more common on the right side than on the left." The number falls off rapidly and continues to diminish until after puberty. It has been said that one in every four of those over 60 years of age suffer from it. It would appear that at different ages hernia appears to be more prevalent than at others, but during the reign of George I. of England it is stated that about one in every eight soldiers in his army had hernia, while in more modern times we find that the figures vary. Graser[3] makes the assertion that about one of every 20 or 30 individuals has a rupture of some sort, but it is an impossible matter to have accurate statistics concerning this point. It is a well-established fact that hernia appears in every social condition, but as averred by Bryant,[4] it occurs more frequently in the so-called working classes, because hernia occurs oftenest in the most numerous classes, and not necessarily in the most laborious.

Kingston[5] estimates that in about 34 per cent there is hereditary tendency to hernia. Mansel Moullin says: "Hernia, there is no doubt, is hereditary, or rather the conditions that predispose to it." Manley says: "Hernia is essentially an infirmity, without doubt, in the majority of cases, of a congenital origin. It is in essence a freak of evolution."

Ochsner$_4$ says: "More than one-third of all patients suffering from hernia give a history of hereditary tendency in this direction. This is true especially in patients who have one or both parents with a similar defect."

Manley,[6] after averring that hernia, without doubt, in the majority of cases, is of congenital origin, says: "Although the mass itself may not always appear at birth, or at least be noticed immediately after delivery, the causes which lead to it, non-descent or mal-descent of the testis, want of obliquity in the canal, prolapse of the infundibulum process, etc., obstruction or stenosis of the emunctory passages, etc., are there. It is in essence a freak of evolution, one of the many so often observed on a rigorous scrutiny at birth, and which under favorable environments like the others, in the majority of cases, will correct itself and disappear with the growth and maturity of the body."

It has been plainly demonstrated that congenital hernia occurs because of the insufficient obliteration of the vaginal process of the peritoneum and in congenital inguinal hernia only the sac is congenital. Again, in congenital hernia proper anatomical conditions favorable to visceral escape always tend to amelioration or permanent spontaneous cure in infancy and early childhood, so that any compilation regarding the frequency of congenital hernia must be considered on a basis of its frequency in newly-born children and not entirely on periods in after life. Much discussion has arisen as to the part played by the vaginal process in the development of inguinal hernia. It is claimed by some authors that the vaginal process cuts an important figure in the formation of all cases of inguinal hernia, while on the other hand authors contend with equal ardor that the vaginal process is of comparatively no importance and has nothing

to do with the development of hernia in later life. Others, like Graser, contend that a middle and more just view must be taken, that the degree of obliteration bears considerably, and that it is uncommon to have free communication between the vaginal process in the peritoneal cavity later in life. However, it is more apt to close at the scrotal end, even as far as the internal abdominal ring, and then remain patent in the region of the cord. According to Graser, Franke found a congenital hernial sac 18 times, i. e., 28.6 per cent. Berekowski found a congenital sac 42 times, i. e., 35.5 per cent. Kacher and Wood 33.3 per cent. There is no doubt but there is an equally large number of cases where the vaginal process is closed below and patent above, thus forming a small funnel into the internal abdominal ring. The relative position of the rings have an important bearing as an etiologic factor in the production of hernia. Where there exists a strong predisposition to hernia and when the infantile type is perpetuated, one ring lies in almost immediate juxtaposition with the other; hence under these conditions there has been practically no inguinal canal at any time. In the infant both rings are so opposed that there is no canal. According to Manley, Camper, in dissecting 17 infants under three months old found the fascia propria or peritoneal investment of the cord continuous with the general cavity, freely open on both sides in 11. It was open on the right side in four, on the left side in two. Hence in the 17 it was completely closed on both sides, at this age in but one. There was no hernia.

No one who has studied this subject can fail to see that nature frequently fails to perfect her process of evolution and must agree with Manley that had the male generative glands been retained in the abdomen as they are in some of the quadrupeds, man would have been spared much misery. There is no doubt but that the inguinal canal is one of the weakest spots in the abdominal wall of any man. There can be no doubt that the constructive integrity of the abdominal walls is the constant moulding factor in many forms of hernia, and the occurrence of inguinal hernia depends upon the integrity of the inguinal canal. It is natural to presume that physical conditions existing in the ring and canal are active in the production of hernia. A wide, straight inguinal canal will more readily permit the occurrence of hernia than one of a contrary character. It has already been stated that the juxtaposition of the rings strongly predisposes to hernia. Again, there is frequently associated with lax abdominal walls a wide inguinal canal, this being accompanied with considerable separation of the pillars of the external ring. There very often occurs an abnormally wide canal owing to the accumulation of fat surrounding the cord, and how frequently fat is prone to create hernia by its separative power within, is hard to say. It is not of importance to speak of acquired predisposition at this time arising in senility from general relaxion of abdominal muscular contraction, nor speak of conditions which arise in consequence of pregnancy, dropsy, tumors, etc. Persons having an abnormally long mesentery owing to dependency and pressure weakens the lower part of abdomen, thus leading to hernia.

Space will not permit the writer to discuss other and various predisposing causes of hernia, but it may be stated as a fact that any cause menacing the integrity of the abdominal walls is likely to predispose to hernia. The writer holds that any surgeon who has made a careful study of the surgery of violence, that is railway and allied injuries, must and will come to the conclusion that traumatic hernia is so extremely uncommon as to leave doubt as to its verity in almost every case.

Again, there is no room for successfully contending as to the possibility of a combination of accidental causes producing hernia without any predisposing factors. Another important point to consider is the possibility of traumatic hernia appearing suddenly in all of its component parts.

According to Coley[7] Sultan in his recent Atlas and Epitome of Abdominal Hernias states: "In the physical examination of a causal relation between hernia and accident we must remember first of all that a hernia complete in all of its parts can never arise at the moment of an accident, or by a single augmentation of the intra-abdominal tension be it ever so great. If the hernia first appears at the time of an accident we may certainly suppose that the hernial sac was either congenital or gradually formed; although it must be unconditionally accepted that a hernia making its appearance at the time of the injury has never completely developed at that moment. A causal connection must nevertheless be recognized since a preexisting condition has been made worse by the accident or injury."

Graser[8] says: "Kingdon's statement that a hernia is a disease, and not an accident, a pathological condition and not merely a mechanical lesion, applies to most cases of rupture. For if a condition appeared suddenly the physician seeing the case immediately, will usually find evidence of more serious traumatic injury. It is perfectly possible that a hernia may have been gradually developing for some time and that owing to some accidental cause it suddenly increased rapidly in size and becomes evident on inspection. It is quite common in young boys to have a loop of intestine come down suddenly in the vaginal process that has been open since birth. It is not uncommon also to have recurrence after radical operation appear all of a sudden, although this is not the usual procedure. The vast majority of acquired hernias in adults develop very gradually.

The writer was formerly of the opinion that in railway service there was a marked proneness to rupture, but while generally many vocations demand excessive strength and muscular effort on thoracic and abdominal parts, yet it is true that in railway service it is a comparatively small number of railway employes of whom is demanded strong and continuous muscular effort, throwing pressure upon every part of the abdominal cavity, thereby creating pressure upon the abdominal walls, as in lifting and carrying heavy weights. It has been established that hernia in a great majority of instances is the product of long continued muscular effort, this along with structural defect, leads to hernia, and

that hernia is always of slow formation, since very few who are affected with it are aware of its on-coming in its earliest stages, since it develops slowly, gradually and painlessly.

If it had been demonstrated that hernias were produced by sudden, violent and broad muscular use, such as is required in the transportation branch of railway service, then certain it is that this part of the field of the surgery of violence, would bring to view an unending number of hernias, because it can be demonstrated that no sphere of action in any vocation is more completely under the sway of violent and broad muscular use as that of the vocation of railway employe. The surgeon who attends to railway and allied injuries sees thousands of accidents where every form of intense, acute and sudden muscular effort has been used, and when he records the history of these accidents, he finds that rupture as a complication is so remarkably infrequent that he is forced to the conclusion that sudden muscular effort can never be a cause of rupture, for if rupture comes under these conditions it must be not only acquired, but inherited defects which have led to their manifestation.

When we take into consideration the study as to the occurrence of hernias in railway service, it must be understood that physical examination is demanded of all applicants for work, particularly in the transportation department, and this no doubt has a positive influence in lessening the number of hernias found in railway service. From statistics accumulated by the writer one in 210 applicants were rejected for hernia; again, in 567,687 case histories, as made upon the entry books of hospitals, only 512 hernias are mentioned. Out of 89,226 injuries there were mentioned only 404 hernias, and only 194 attempted to obtain compensation for the same. Out of 1,658 abdominal injuries, including such injuries as abrasions of abdomen, 28; concussions of abdomen, 7; contusions of abdomen, 1350; lacerated wounds, 96; incised wounds, 20; burns and scalds, 49; sprains of abdominal muscles, 35; gunshot injuries to abdomen, 18; punctured wounds, 28, etc., no traumatic hernia was manifest. The 404 hernias tabulated under the following headings:

Right inguinal hernia	117
Left inguinal hernia	86
Double inguinal hernia	185
Femoral hernia	6
Ventral hernia	10

The writer notes in a paper written by Dr. Wm. B. Coley and Dr. Preston Sattenhite of New York, on "Traumatism as a Factor in the Causation of Hernia," the following:

"From 1890 up to the present time one of the writers has been connected with the Hernia Department of the Hospital for Ruptured and Crippled, and for more than six years has been in daily attendance. During this period upwards of 50,000 cases of hernia of different varieties have been observed and of this number there are only four in which there were good reasons to believe the hernia was the direct result of injury."

Again, it may be pertinent to quote from Graser the following: "A

hernia is a condition which not infrequently interferes largely with the earning capacity of an individual, even if the rupture is held in place by a suitable truss. Generally an individual with a hernia that can readily be retained in place by a truss can perform only 85 per cent to 90 per cent of the work he was formerly capable of doing, and when the hernia is difficult to hold in place, his wage value may be lessened to the extent of 50 per cent. Only a very small percentage of hernias are the immediate result of accident. A physician at the first examination should question the patient carefully to determine whether the cause can be classed as an accident. A blow or a fall upon the abdomen, slipping or falling while carrying heavy weights with the body in an awkward and unnatural position, especially with the legs spread apart, in ordinary taxing of the physical strength, while lifting, especially when several workmen are carrying a load, and one or more drop the weight or cease to apply any force so that the strain falls upon the one individual. All these conditions come under the head of accident. If physical work is given to an individual disproportionate to his strength, because of his age, or because of some usual occupation, this cause should also be considered under the head of accident."

We well know that there is no symptom characteristic of hernia due to an accident. There are never any signs of acute trauma such as oedema and ecchymosis. Pain is usually present. After several days or even weeks, it is impossible to tell how the hernia appeared, or whether it has occurred gradually or been the result of an accident.

In the investigation of cases occurring in the writer's experience in which the rupture was claimed as being due to violence the examination was carried on on systematic lines, always comparing both sides of the abdominal walls by sight, prior to examining rupture, then to determine whether the person under examination has lax or weakened abdominal walls. This is generally best done in supine position. Here an examination of the external abdominal ring is made to determine whether there is any separation of pillars of the cord, whether or not we have lax intercolumniar fibres, or whether the canal is wide and straight. If it is wide and straight, see whether the cord is surrounded by much adipose tissue. Now, attention should be directed to the healthy side and predisposing factors all noticed, then next follows the involved side. It has been a point of interest in finding the explanation given about the presence of pain and many authors assert that this is due to stretching and traction on the parietal peritoneum.

A later pathology claims that the peritoneum is not supplied to any great extent with nerves or sensation. After a thorough examination has been made it is proper to analyze the evidences presenting. If the patient relates at the time of the occurrence that he had an inordinate amount of pain, and had been more or less nauseated, but still had consulted no physician, then he is in all probability misrepresenting facts. If the hernia is of considerable size and reaches down to the scrotum and the canal is so patulous that the hernia can easily be reduced, either in the supine or standing position, it is safe to say the rupture is of long ex-

istence and is not the result of recent accident or violence. When the hernia protrusion is high up and small in size, and difficult of reduction, there is a possibility that it might have occurred suddenly. A small inguinal ring on both sides and uni-lateral hernia of small extent, likewise points to the possibility of sudden occurrence due to violence.

The writer has in no less than 80 different instances while examining ruptures claimed as due to violence, shown the presence of a smaller one on the opposite side, and almost invariably through this means and close questioning determined that the rupture which had been claimed as recent, has been old, and the incident discovery of new rupture up to that time unknown to patient, was so confusing that truthful statements were obtained.

Family history, if adroitly elicited, often shows that members of at least one branch of the family, if not more, were afflicted with rupture.

The writer has never seen but one case of inguinal rupture in which the rupture was seemingly the product of immediate injury, and that was not really a hernial protrusion but plainly a case where the muscular fibres of the internal and external oblique muscles are separated nearly three-quarters of an inch just above the internal ring.

It may not be out of place to mention an important point given by Graser where he says: "In Russia it is not uncommon for young men who wish to escape military service to enlarge the inguinal canal and stretch or rupture the external ring, which favors the development of a hernia. These cases are easily distinguished from hernias that develop in the usual manner because the external ring is usually irregular, jagged, and infiltrated with signs of inflammation.

According to Coley, Bilfinger's theorum demands that a true traumatic hernia must fulfill the following conditions: First, the hernia must be completely developed after, or at least within a very few days, after receipt of the injury; there must be no predisposition to hernia, no matter of what nature; thus nonlatent hernia, no empty hernial sac. Coley[9] defines traumatic hernia as a hernia resulting from the direct application of force to that portion of the abdominal walls at which the hernia appeared; or a hernia resulting from the indirect application of force causing greatly increased inter-abdominal pressure.

It is asserted that not infrequently a hernia is claimed to be the result of violence, such as a blow upon the abdomen, or a kick, but this cannot be determined unless an immediate examination be made. All attempts by experimentation towards producing traumatic hernia have failed, and as claimed by Bilfinger are due to the fact that it is impossible to produce artificially many of the conditions of the accident.

It would hardly pay us at this time to quote the opinion of various authors as to the possible occurrence of hernia from trauma, since they are remarkably few in number, but we will quote Manley when he says: "It may be said with emphasis and certainty that the direct application of concussive force is never a primary cause of hernia, that its effects are always secondary and consecutive. That when a hernia is already present, violence which might in the sound, whole individual, be borne

with impunity, may if accidentally applied over the viscera which escaped from the abdominal cavity, cause very painful or mortal consequences. Hence the herniated is not a whole perfect being, so that a comparatively trivial force, which in the normally developed would make no impression, might with him be followed with serious results. There is no evidence that ordinary bodily traumatism aggravate the herniated condition, except in those cases in which injuries applied immediately over the herniated area."

Again, the conclusion of Dr. Wm. B. Coley and Dr. Preston Satterwhite, in their paper on "Traumatism as a Factor in the Causation of Hernia," says: "A very careful examination of all the reported cases of traumatic hernia shows the evidence pointing strongly to the probability of a pre-existing hernial sac in every case. In other words, it is extremely doubtful if traumatisms alone without an open funicular process in the hernial canal can ever produce a hernia."

Finally, as bearing upon the question, we quote the following by W. Rosser of Marburg,[10] "The responsibility of accident insurance companies, as well as corporations, when defendants at law in personal damage suits, based on the occurrence of inguinal hernia, constituting a portion of the whole of the injury sustained is of interest to the surgeon who may be called upon to express an opinion on the subject. The fact that the formation of the most important part of the hernia, namely the sac, occupies a period extending in some instances over many years, and is frequently a congenital condition, and the further fact that the occurrence of the protrusion results from a gradual traction and pushing forward of a certain isolated portion of the abdominal wall should decide the question against the contention that hernia is to be considered as resulting from accident, particularly as a number of such hernias depend upon peculiar local conditions, such as the existence of lipoma etc. On the other hand, the occurrence of strangulation is always to be considered an accident in connection with accident insurance, and may, with the presentation of proper proof be justly claimed as a factor in the settlement of claim in personal damage suits."

In conclusion it must be said that Kingdom's aphorism, which avers "that hernia is a disease and not an accident; that it is a pathological condition and not merely a mechanical lesion," is as near true as an aphorism can be. Nor can it be gainsaid that the constructive integrity of the abdominal walls is the moulding factor in many forms of hernia, or that the inguinal canal is one of the most exposed and at the same time one of the weakest parts in the abdominal wall of each aand every man, and the occurrence of inguinal hernia bears a positive relation to the integrity of the inguinal canal. Nor can it be denied a wide, straight inguinal canal more readily permits the occurrence of hernia than one of contrary character and associated with a wide canal, than are lax abdominal walls and considerable separation of the pillars of the external ring. Again, the part played by the vaginal process is of undoubted effect; that its degree of obliteration is a positive factor and it is uncommon to have free communication between the vaginal process in the

peritoneal cavity later in life, and it is more likely to close at the scrotal end up to the internal ring and then remain patent in the region of the cord. It has been demonstrated that there are equally large numbers of cases where the vaginal process is closed below and patent above. These very often occur on abnormally wide canals owing to the accumulation of fat surrounding the cord, if Bayer's[11] assertion be true that complete absence of fat in the inguinal canal is characteristic of congential hernia, then there must be not an inconsiderable number of acquired cases of hernia through the expansive power of fat. It must be remembered predisposition cuts an important figure in the production of hernia generally. Physical weakness leading to emaciation, general relaxation and consequent hernia in young children, while owing to the relaxation of muscles and fascia in old age there is a tendency to multiple ruptures or where the lower portion of the abdomen in the aged changes through disease, leading to separation of the anterior abdominal wall. Again, conditions associated with extreme distension of the entire abdominal cavity and the incident stretching of the abdominal walls leading to hernia; this occurs especially in pregnancy. Again, an abnormally long mesentery and its consequent pressure and dependency weakening the lower part of the abdominal walls so as to produce hernia, and also the presence of the subserous lipoma.

In summing up the examination of any case it is to be remembered that there are no symptoms characteristic of hernia due to trauma, that is, there are never any signs such as oedema, ecchymosis, etc. After several days alone without considering periods beyond that, it is impossible to tell how the hernia appeared, whether it has occurred gradually, or suddenly as a result of an accident. It is established beyond all doubt that a hernia may exist for an indefinite period and not be recognized by the patient until an examination by a physician indicates its presence. It is the consensus of opinion with the great majority of authorities upon this subject against the possibility of the occurrence of hernia as a result of trauma. If it is possible for traumatic hernia to occur the manifestation of the same is of such a very rare occurrence as to "hardly have any significance from a practical standpoint."

Again, the highest authority deem it impossible and contrary to experience to have a sudden development of the hernial sac. Authorities claiming traumatic hernia possible define the following conditions necessary in making a diagnosis: It must be completely developed immediately after or at least within a day—two days—there must have been no predisposition to hernia no matter of what nature, that is no latent hernia, no empty hernial sac. The assertion of Manley, until disproven, stands when he says: "I am able to say without any qualification whatever, that hernia is never attributable to traumatism alone unless the violence be applied by some hard, sharp-pointed instrument or substance, which either punctures or rends the abdominal wall, and that when a hernia appears after the application of ordinary force it can always be

demonstrated that it had previously existed, the accident or injury being an incident. . . . . It may be said with emphasis and certainty that the direct application of concussive force is never a primary cause of hernia; that its effects are always secondary and consecutive."

Again, it is equally as pertinent to the subject the assertion of Sultan quoted by Coley who said "that hernia complete in all of its parts can never arise at the moment of an accident or by a single augmentation of the intra-abdominal lesion, be it ever so great. If the hernia first appears at the time of an accident we may certainly suppose that the hernial sac was either congenital or gradually formed."

Again, it should be remembered that in every case of so-called traumatic hernia there is "evidence pointing strongly to the possibility of a pre-existing hernial sac. In other words it is extremely doubtful if traumatism alone without an open funicular process in the hernial canal can ever produce a hernia."

Finally, it must be held that after a citation of all the facts above mentioned regarding hernia, they are incompetent to prove that traumatic hernia is by itself, or in connection with other stated causes or facts, ever an absolutely established fact. The burden of proof being upon the affirmative side, hence the affirmative must demonstrate beyond all reasonable doubt that neither acquired predisposing defects nor constructal congenital defects were non-existing in any given case of traumatic hernia; it must be shown that the case of traumatic hernia under consideration developed immediately after, or within a day or two, and that there existed in the case no predisposition to hernia, no matter of what nature, and that in every case of traumatic hernia there is evidence pointing strongly to the probability of a pre-existing sac; that it is extremely doubtful if traumatism alone without an open funicular process in the hernial sac ever produced a hernia. The affirmative must prove the falsity of the assertion that when hernia appears after the application of ordinary force it can always be demonstrated that it had previously existed, the accident or injury being an incident, and likewise disprove the assertion that the direct application of force is never a primary cause of hernia, that its effects are always secondary and consecutive.

Still further the affirmative must prove that hernia complete in all its parts can occur and that at the moment of the accident, no matter how great the augmentation of the intra-abdominal lesion. If the hernia first appears at the time of the accident we may certainly suppose that the hernial sac was either congenital or gradually formed. Medico-legally, then, the existence of traumatic hernia has not been proven, for the conclusion forced upon us by all the facts cited do not seem to be competent to prove that traumatic hernia occurs according to the common course of events, either by itself or in connection with other causes, or facts, as stated. All cases of traumatic hernia cited by competent author-

ity up to the present time present at least some elements of doubt which cannot be perfectly eliminated.

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INJURIES TO THE EYES OF THE CHILD INCIDENT TO INSTRUMENTAL DELIVERY.*

By John Green, Jr., M. D., of St. Louis.

The subject assigned to me this evening—"Injuries to the Eyes of the Child Incident to Instrumental Delivery"—is really a subdivision (though a large one) of the more comprehensive subject "Injuries to the Eyes of the Child During Labor." The larger question was dealt with by Bloch[1] to whom must be accorded the honor of being the first to study eye injuries occurring during the act of birth. Subsequent papers by Schmidt-Rimpler,[2] Truc,[3] Praun,[4] Sidler-Huguenin[5] and Thomson and Buchanan[6] have touched upon various aspects of the question.* We are indebted to Bruno Wolff[7] for the most elaborate exposition of the subject, his paper gaining special value from containing a synopsis of all cases reported up to 1905. In the preparation of this paper, I have drawn largely from the material collated by the last named author.

It will be noted that all the authors mentioned above are ophthalmologists, a fact which would lead one to infer that this subject has been but little discussed from the standpoint of obstetricians. Such, in fact, is the case. Statistics emanating from obstetrical sources give one the impression that injuries to the eyes are excessively rare. Thus in the report of 39,317 confinements which came under observation in the obstetric department of the Charite in Berlin, only six cases of eye injury are specifically mentioned. *Per contra,* individual obstetricians, who have paid special attention to the injuries of the infantile skull in difficult labors, as for example, Nagel,[8] have observed injuries to the eyes in greater proportion than the foregoing statistics would indicate. When we remember that Wolff's 112 cases come almost exclusively from ophthalmological sources and that numerous cases of ocular injury in the new-born, especially those which occur in still-born children, never come under the observation of an ophthalmologist, it seems highly probable that ocular injuries are more frequent than obstetrical data would indicate. The attainment of statistical accuracy is beset with many difficulties, as will be fairly obvious when we recall that the obstetrician will ordinarily take cognizance only of the grosser external lesions and will not concern himself with minuter alterations in the interior of the eye.

The brief time at my disposal will not permit an extended reference to the literature and I have therefore thought best to present a synopsis of one or more cases illustrating the various types of ocular injury incident to instrumental delivery, accompanied by such obstetrical data as may render clear the difficulties encountered by the accoucheur. Discussion will be confined to injuries in the strict sense of the word, excluding from consideration such minor and transient effects of instrumentation, as abrasions of the skin of the lids, congestion of the conjunctiva, and

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insignificant subconjunctival and subdermal hemorrhages. The injuries are considered in the order of their frequency.

Injury to the Cornea: This form of injury is the most frequent of all ocular injuries. It has been investigated especially by Thomson and Buchanan,[6] who describe two forms: (1) The opacity is diffuse and soon passes away. (2) Linear or irregular stripes of opacity which are permanent. The first form depends upon edema of the cornea, the second upon tears in Descemet's membrane. Buchanan relates the following case illustrative of the second type: A six year old boy had an internal squint of the right eye incident to a high degree of inverse myopic astigmia. Examination revealed several vertical streaks of opacity in the nasal third of the cornea of this eye. The delivery was a very difficult forceps, with wounding of the right temple and ecchymosis of the lids. Buchanan's suggestion that many cases of unilateral high grade astigmia should properly be ascribed to ocular injury at birth, seems distinctly plausible.

Fracture of the Frontal Bone and Orbital Roof: Author—Lomer:[9] Pressure marks on the frontal bone accompanied by infiltration and edema of the eye lids; moderate exophthalmus; necropsy revealed an intracranial fracture of the roof of the orbit which was partly filled with blood effusion. Obstetrically considered, the head lay over the pelvic brim in the first vertex position. Sagittal suture transverse. Pelvis flattened in moderate degree. Forceps so applied that the right blade, corresponding to the position of the head came to lie in front in the pelvic brim. Difficult extraction.

Protrusion of the Globe (Exophthalmus): The forces producing protrusion of the globe appear not to be identical in all cases. For instance, Beaumont[10] reports a case in which the forceps blade acted in a manner similar to the speculum with which, in the operation of enucleation, the eye ball is dislocated forward. In Zweifel's[11] patient, the exophthalmus occurred through the squeezing together of the skull bones by the forceps. Fracture of the frontal bone is an occasional complication.

Subconjunctival Extravasations: Extensive subconjunctival extravasations are usually accompanied by other injuries. Leopold[12] reports the following case: Blood extravasated under the conjunctiva of both eyes and the anterior chambers filled with blood. Frontal bone severely crushed. Forceps applied to the head while it was still high up.

Paralysis of Ocular Muscles: Author—Bloch:[13] Inward squint of the left eye which was first observed in infancy. Scars over the left malar bone and right side of lower jaw from forceps. Left abducens paralysis, atrophy of the optic nerve, and pigment formation in the retina. All four deliveries were difficult, the first two being completed with forceps. This (4th) child required repeated attempts at extraction. In Nettleship's[14] case, both right 6th and 7th nerves were paralyzed. Brow presentation in somewhat narrow pelvis, one blade of the forceps lying behind the right ear, the other partly in front of the left ear.

Hemorrhage into the Anterior Chamber (Hyphema): Hemorrhage

into the anterior chamber, though in itself frequently of little moment, is usually accompanied by severer injuries such as crushing of the frontal bone, choroidal and retinal hemorrhages, etc., and its occurrence is therefore of grave prognostic significance. Wintersteiner's[15] case: At birth the conjunctivæ were infiltrated with blood and there was blood in both anterior chambers. The child died after nine days, of uncontrollable epistaxis. Examination of the eye revealed diffuse extravasations of blood between the ciliary body and sclerotic, in the sub-arachnoid, reaching back to near the equator of the globe, in the episclera and in the sclerotic. Remains of larger blood collections in the anterior and posterior chambers. The optic nerve, the posterior part of the choroid and almost the whole retina were free from extravasation. The mother was a primipara with generally contracted pelvis. Conj. vera 9 cm. Forceps to the head in the pelvic brim, child deeply asphyxiated but revived. Wintersteiner believes that through direct pressure of the forceps blade, a crushing of the globe on one side and a fracture of the ethmoidal cells on the other had taken place.

Optic Atrophy: Author—De Beck:[16] Divergent squint of the left eye with dilatation of the pupil. Typical white atrophy of the optic nerve head had existed from birth. Definite skull depressions over the left eye and occipital protuberance. Delivery, difficult forceps.

Injuries of the Lids: Author—Truc:[3] (1) After birth it was noted that there was enormous swelling of the lids and a laceration of the skin from forceps. Four years later a scar remained at the site of injury and the child had internal squint. Forceps delivery, the grasp on the skull being in the direction from before backwards. (2) Author—Steinheim:[17] After forceps delivery, it was seen that the external part of the upper lid had been torn away. Four months later a marked ectropion had developed.

Crushing of the Globe: Steinheim:[17] Following forceps delivery, there was found a broad tear upon the nasal ridge and a tear through the left upper eye lid. Left globe was completely crushed.

Avulsion of the Globe: The most formidable of all ocular accidents incident to forceps delivery is complete avulsion of the globe. Authors—Thomson and Buchanan:[6] After delivery the baby's left eye was found lying on the cheek, held only by the conjunctiva and external rectus. Over the left frontal and parietal bone was a large spoon shaped depression. No tear of the eye lids, although the lower lid was somewhat swollen. Right sided opacity of the cornea. The mother, a multipara with narrow pelvis. Fetal head unusually large in transverse diameter of the pelvis. Axis-traction forceps repeatedly applied to the head in its longitudinal diameter. Delivery only accomplished after symphysiotomy. In pelvic outlet the forceps were applied in the biparietal diameter.

Author—Maygrier:[18] After delivery one eye was closed and the lids appeared as though pressed back into the orbit. On separating the lids no trace of the eye ball could be found. It was afterwards discovered among the towels. Death shortly intervened. Necropsy showed that a fragment of bone from the fractured orbital roof had cut through all

the ocular attachments like a guillotine. The delivery was a forceps in a narrow pelvis in the course of which two people pulled together on the head.

The foregoing comprise the principal ocular injuries incident to instrumental delivery. I will simply allude, without further comment, to rare injuries of which only one or two instances have been reported. These include deep intraocular hemorrhage, abscess of the orbit, oculomotor palsy, traumatic cataract, infantile glaucoma, iridodialysis, fracture of the lachrymal bone, tear of the cornea and sclera, rupture of the choroid, exophthalmus and traumatic paralysis of the levetor palpebrae and rectus superiosis.

It is thus seen what an array of ocular injuries have occurred in the course of instrumental deliveries and were one to base a judgment solely on the facts presented, that judgment might well be definitely antagonistic to the employment of obstetrical forceps. In all cases cited above forceps were employed. So far as my limited knowledge of obstetrics goes they were absolutely indicated. In how many cases the technique was faulty or the accoucheur unwise in his choice of the period of labor for instrumentation cannot be determined. It is certain, however, that in many cases the obstetrical operation was in the hands of a thoroughly competent accoucheur and the operation performed *secundum artem*. It should be noted that the less severe and remediable injuries greatly outnumber the severe and irremediable—for instance, opacity of the cornea, many instances of which undoubtedly were simply cases of transient edema and the more severe types in which Descemet's membrane was torn and astigmia developed is specifically mentioned thirty-two times. On the other hand the most severe injuries as represented by crushing and avulsion of the globe occurred only four times each.

In all the cases mentioned above forceps were applied, but the inference that all the injuries were directly due to instrumentation would be entirely erroneous. Of interest in this connection is Wolff's review of fifteen cases of injury in which the forceps were not employed. The injuries range in severity from simple edema of the lids to complete avulsion of the globe, and include in addition to the just mentioned types, fractures of the orbit, depression and fracture of the frontal bone, facial palsy with resulting lagophthalmos, exophthalmus, diffuse opacity of the cornea, paralysis of the abducens and of the elevator and depressor of the eye ball. For purposes of discussion, Wolff has adopted the following classification:

1. Labors in which the head is born last.
   - (a) Turning.
   - (b) Primary pelvic presentations.
2. Labors with the head presenting.
   - (A) Spontaneous deliveries.
   - (a) Usual vertex presentations.
   - (b) Vertex positions with prolapse of an arm.
   - (c) Frontal presentation.

(d) Face presentation.
(e) Brow presentation.

Permit me to cite a few examples.

Dittrich.[19] Depression of the left frontal bone, below the middle of the left coronal suture, and over the border of the fissure between the frontal bone and the sphenoid. A penetrating fracture of the bone. Fracture of the left orbital roof. Breech presentation; child still-born. A doctor was only sent for when the midwife could not deliver the head.

Hofmann.[20] Full term, strong child. The right eye ball has been gouged out and hangs on the cheek by the not quite ruptured inferior rectus muscle. Multipara II. perfectly spontaneous delivery in the first vertex position. During labor, the patient took 5 ten grain powders of ergot. After a fourth confinement the woman died. Necropsy showed: Trochs. 11 inch. crests 10½ inches; spines 8 inches; conj. 3 inches; trans. diameter, 4¾ in. The promontory projected forward markedly, and had a sharp border. In the whole pelvis, no deformity, no bony prominence or anything of the kind.

Sidler-Huguernin[5] reports three cases of total paralysis of the abducens and one case of paralysis of the elevator and depressor of the left eye. In all four cases it was ascertained that the labor was very slow but no artificial help was given.

Thomson and Buchanan.[6] Diffuse opacity of both corneae. Vertex presentation, arm prolapsed by the head.

De Wecker.[21] Avulsion of the globe. Face presentation. The orbit was taken to be the anus and the eye was destroyed by the examining finger.

In this connection, it is well to mention the extraordinary frequency with which small retinal hemorrhages which have their origin in the act of birth, may be demonstrated. Thus Schleich[22] in 150 new born children noted in 49 (32 per cent) fine extravasations in the retina. Further discussion of this interesting point would be out of place in the present paper.

In attempting to arrive at a just conclusion, I believe we should look at this question from two standpoints—the ophthalmological and the obstetrical. From the ophthalmological standpoint, ocular injuries incident to instrumental delivery may be divided into two principal groups: First, the severe type in which there is serious impairment of the ocular function, grave facial and ocular disfigurement and destruction of the eye ball; and second, the mild type in which the injury is essentially of a transient nature and either disappears entirely in the course of time or leaves such traces as may impair but not destroy the eye as an organ of vision. An estimate based on the 112 cases epitomized by Wolff shows that not over 25 per cent could be classed as severe, while 75 per cent are properly placed among the mild injuries.

From the standpoint of the obstetrician, it should be remembered (1) that nearly all of the deliveries were difficult, many of them extremely so. (2) That the indications for instrumental interference were almost invariably urgent from the maternal side. (3) That frequently the in-

dications were equally urgent from the fetal side. (4) That in certain cases the forceps were not directly responsible for the ocular injury. (5) That the maternal morbidity and mortality was extremely low. (6) That the fetal mortality was not high and the fetal morbidity, apart from the ocular injuries, was insignificant.

Let the ophthalmologist, who would protest against the use of the forceps on the ground of possible injury to the baby's eyes, remember that upon the accoucheur rests the greatest responsibility that falls to the lot of physicians, viz., the preservation of two human lives. Let us not for one moment forget that responsibility. Viewed in this light, how trivial seems even the loss of an eye in comparison with the possible sacrifice of the mother's and the baby's life.

It appears, then, that the possibility of injury to the infant's eyes can hardly weigh as a serious contraindication to the employment of obstetrical forceps, but the possibility of such injury should always be borne in mind by those who attend women in confinement. After prolonged or difficult labors, whether spontaneous or instrumental, any marks of violence to the eyes or ocular adnexa of the baby, or possibly even in the absence of such marks, a searching examination not only of the external ocular structures but the deeper parts of the eye is urgently demanded for the sake of the future ocular welfare of the infant.

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THE RELATION OF INSTRUMENTAL DELIVERY TO TRAUMA OF THE CHILD'S NERVOUS SYSTEM.

By Sidney I. Schwab, M. D., of St. Louis.

There is ground for the assumption that in the scheme of existence relating to the propagation of the species there is no place for instrumental deliveries. It is likewise a warrantable conclusion that evolution demands for the progress and improvement of the human kind an act of birth which shall damage neither the mother nor the child. The exceptions to these general principles must depend upon the factors which play their part in the production of abnormal deliveries, and the factors which result from the application of instruments or in the manipulative efforts directed towards overcoming hindrances to birth. It is in the consideration of such facts that a notion of the importance of injury to the nervous system through abnormal deliveries can be obtained. Another group of facts that is given less importance than it deserves, is the influence which pre-existing diseases affecting the foetus may have upon the living child. These factors may act during birth, before and immediately after birth. They may be, however, in such close proximity to the act of birth itself that they cannot be separated from it in any analysis of probable causative influence.

In attempting to determine the frequency and importance of such injuries as have been here outlined it must be borne in mind that in every case we are dealing with one absolutely unknown factor, and that is the condition of the child before the mechanism of birth is set in action.

The only means at our disposal of approaching this subject is the study of large numbers of cases reported from hospitals. The weakness of statistical proof is manifest at the outset. This source of error must then be taken into account in any final conclusion. There is therefore little place for dogmatism, but much room for as fair a discussion of the question as the facts we are able to ascertain permit.

In the statistical study there are at hand two sources of facts. The first is the collected histories of large numbers of diseases of the nervous system and the mind as seen in asylums, hospitals and practice, in which the data of birth are given, obtained in many instances years after that event took place. The second is the records of nervous symptoms or diseases observed shortly after birth which can be attributed to some accident in the act of birth, using the term accident in a very broad sense. It is readily seen that of these two sources of material the latter is by far the more valuable, on the other hand the later development of certain diseases make the former group in a sense necessary. It is of course difficult to bring together conclusions derived from so different a lot of facts, and in this lies, I believe, much of the reason for the difference of opinion which has always existed on the question under consideration. In any large body of histories relating to insanity, epilepsy and infantile paralysis of various kinds, a certain percentage of abnormal deliveries will

be found. The attempt is made to seek for an etiology more tangible and more material than heredity, previous infection of the mother, or other causes clearly in evidence.

This percentage is then translated into an etiological fact. Consequently there has been handed down by tradition the statement that accidents at birth are responsible for a great variety of nervous and mental diseases. The fact thus apparently proven resting, as I have said, upon a percentage of abnormal deliveries, is more closely approached and the analysis of causes determined. The known abnormal events are taken to be the causative factors, so these diseases are variously charged to long labors, delayed labors, instrumental deliveries, faulty positions, etc. The fallacy of such reasoning rests upon the fact that previously developed etiological factors can neither be studied nor their proper importance determined. In other words, ignorance of the condition of the child before it was born invalidates most of the conclusions based upon conditions found after birth. Unqualified statistical evidence of this kind I propose to omit in the consideration of the question as it now stands. Approaching the matter more closely, there is found the following mechanical causes acting in the production of possible injuries to the nervous system of the new born child. Delayed labor, instrumental delivery, faulty position and manipulation. Naturally several of these factors can be taken together from the point of view of etiology.

Any of these, or a combination of them, may be the cause of definite injury to the nervous system. The injury is the more definite the more direct its application. For example, a direct twisting of the arm produces a brachial palsy by stretching the brachial plexus, the resulting neuritis being the so-called birth-palsy. The pressure of the forceps over the mastoid produces facial paralysis by direct pressure on the facial nerve. The cervical plexus can be affected in a similar way. Fracture of the skull, or pressure severe enough to produce meningeal hemorrhage, can conceivably be brought about as the result of forces acting in a purely mechanical way. Such facts are matters of actual demonstration. The relation in instances of this kind between cause and effect is so close that the deduction is irresistible that the obstetrician's art, especially its instrumental application, can be justly charged with that amount of damage. It might be mentioned, in this place that most of the damage of this nature is the result of clumsy and often useless instrumentation or manipulation, so that in any final casting up of the probable damage, the burden of the unskilled in increasing the percentage of occurrence must be taken into consideration. Thus far we are on fairly certain ground. No well informed obstetrician will dispute the conclusions here set forth. It might be stated therefore that diseases of the nervous system which may depend upon direct or indirect head traumata, pressure neuritis of various kinds in which the evidence of mechanical force is certain, and a small percentage of the meningeal hemorrhages in which the rupture of the blood vessels is a direct effect of injury during the course of delivery, may be said, without much fear of controversy, to be due to accidents in which the application of forces other than the natural ones must

of necessity be employed. The percentage of such accidents is very uncertain differing largely with the material. In a recent report 499 applications of forceps gave thirty cases of facial palsy. In a series of 213 autopsies at the Baudeloque hospital there were found to be seventy of normal weight, and of these cases there were nine in whom were found evidences of hemorrhage into the brain substance. Six of these occurred after forceps operations of various kinds. Even in as limited a series as this it is seen that the lack of a preöperative history invalidates in a large measure the result. It has been stated that no well authenticated instance has as yet been reported of a case of meningeal hemorrhage due to the act of birth itself. Yet the number of cases of this kind in the history of which there is a perfectly normal delivery is not inconsiderable. This points squarely to the fact that every pathologic condition found after an abnormal delivery may have either existed before the mechanism of birth was set into activity, or was the result of some tissue anomaly undiscoverable until the child was born. Prenatal pathology could no doubt explain many of the symptom-complexes that have been attributed to the act of birth itself, or to the manipulations accompanying it.

This brings us naturally to the consideration of the diseases that have been attributed more or less vaguely to the injuries received during birth, and this refers largely to the injuries resulting from the application of forceps. Idiocy, imbecility, epilepsy, hydrocephalus, encephalitis, cerebral hemorrhage, Little's disease, diplegias of various kinds, etc., have all been attributed to these agencies. Idiocy, imbecility and epilepsy are the ones that are most constantly and most insistently mentioned. It is of frequent occurrence to find in the histories of patients with these affections, long, abnormal, or instrumental labors. The conclusion naturally advanced is that something has happened during labor which produced cerebral conditions resulting finally in these diseases. It is a very difficult matter to determine what importance to give to this assumption. The constant assertion that it is so, and the undoubted larger number of histories of abnormal deliveries in this class of cases, force us to consider the etiological significance of this factor with some degree of seriousness. The post mortem examination of the brains of idiots and imbeciles made many years after birth very often shows changes in the brain itself that to some extent at least allow them to be brought into relation with the clinical symptoms of mental backwardness. The changes are, however, so variable that it is impossible to admit more than a possible connection with traumata received in the course of instrumental delivery. Pressure on the foetal brain, that is, on the brain of a child in the act of being born, sufficient to produce rupture of a blood vessel, is not likely to produce permanent enough damage of the cortical brain cells to result in the mental changes classed as imbecility or idiocy. If this is true of so gross a condition, it must be doubly true of so intangible a cell change which gives rise to epilepsy. In epileptic brains, as you are no doubt aware, there are no definite pathological variations from the normal, at least any that are constant or

characteristic. The pathology of epilepsy is as yet an unsolved problem. In other words, from the point of view we are now considering, the cell changes must be of so delicate a nature that they escape observation by any of the methods of technique now at our disposal. The traumata of birth, instrumental or otherwise, are by their very nature gross and mechanical. An epilepsy dependent upon them must therefore be the result of material changes so definite that they can be easily determined. As a matter of fact we do find that kind of change in the cases where epilepsy is a part of the symptom complex; for example, in the hemiplegic imbeciles in combination with epilepsy. This is a very common condition. I believe that it is a warrantable conclusion, at the present stage of our knowledge, to admit that epilepsy, except in the form just mentioned, is not a common enough sequence of birth injuries to be of any statistical importance. Meningeal hemorrhages are certainly, in some instances, produced by forceps injuries. If these cases recover from the birth trauma, they may develop hemiplegias of various kinds, epileptic manifestations and the resulting mental impairment. Even in this class of cases, which must be very infrequent, the absence of any antepartum history in respect especially to diseases of the blood vessels, invalidates to a large extent even so modest a conclusion as this. It has been asserted that a long-delayed labor produces toxic changes in the nerve cells which afterwards give rise to all the conditions, or any of them, which have been just mentioned. This assertion has so often been mentioned and by men of so adequate an experience, that we feel bound to pay some attention to it. The evidence in support is largely that of the personal experience of men whose opinion must be given due respect. The changes produced by delayed labor for which, in some instances, forceps are used, that is the changes following deep cyanosis, are not such as are commonly regarded as having anything to do with epilepsy, idiocy and the like. As opposed, there is the immense number of normal children who have been through the most severe conditions approaching strangulation during birth.

It must be remembered likewise that in a certain proportion of imbeciles, for example, there is present at birth changes in the skull which are of themselves productive of delayed labor, or pathologic labor. Instrumental damages in this class of cases cannot be said to be an important etiological factor. There are a number of diseases found in infants which are the result of slowly developing degeneration in the motor system. The diplegias and Little's disease are examples of this kind. It can be safely asserted that in the absence of any condition due to gross lesions, such as fracture or hemorrhage, none of the system diseases of this variety can be attributed to injuries received during birth.

COXA VALGA; UNUNITED FRACTURE OF THE FEMORAL NECK: REPORT OF TWO CASES.

By Nathaniel Allison, M. D., of St. Louis.

The two cases here reported present examples of some of the surgical conditions about the hip articulation.

Acquired coxa valga, or collum valgum, is a condition comparatively rarely seen, and when seen is very often of small importance, clinically speaking. It depends for its development upon an error in the nice adjustment of the two forces, viz., growth and weight-pressure, during the growing period. The literature on this subject, though not extensive, is sufficient to establish, through the writings of several observers, the fact that an opening of the angle formed between the neck and shaft of the femur follows, by means of the static conditions created, a disarrangement of the normal relationship between growth and weight-bearing at the upper end of the femur. Gangolphe has reported a case of a young man of twenty years of age who possessed genu valgum, due to a septic process, in one knee, and coxa valga, as a result, on the other side. Humphrey has shown that the more open angle of adolescence may be preserved in adult life, where superincumbent weight is removed, by a cause such as paralysis, amputation, or constant confinement in bed. Hoffa, Manz, Young and Theim have reported cases that depended for their development on an injury to the upper femoral epiphysis, with consequent changes in the growth of the epiphyseal line. Galleazzi reported a year ago two cases of coxa valga, which he corrected by subtrochanteric osteotomy. Aside from his paper, little has been suggested in the way of treatment, which would tend towards the correction of this deformity. A possible explanation of the scarcity of operative interference is that the acquired cases are usually discovered in subjects who present other lesions contraindicating operative treatment. David reports an improvement of 7 degrees in the angle of depression, produced by fixing the thighs in an exaggerated position of adduction and inward rotation.

Case 1. Acquired Coxa Valga.

F. S., seen first in 1904, age 10 years, gives the following history: Has always been healthy, and aside from an injury to his right hip, which occurred at the age of five years, has had no trouble, further than the lameness which followed this injury. The injury consisted of a fall from a picket fence, the child striking directly his right hip. His limb was sore for some weeks, and very sensitive. After this time, he walked upon his limb, without pain, but with it always in an abducted, externally rotated position. August, 1904, examination revealed the following facts: Healthy boy, normal development, no signs of rickets. Spine and all joints except the right hip normal. Right hip: Abducted to angle of 60 degrees, flexed 20 degrees, externally rotated 90 degrees. All motions limited to a few degrees. Spasms of adductor tendons. An

X-ray plate was taken of the right hip, which revealed an abnormal condition of the acetabulum, probably the result of a fracture. Under an anesthetic, the hip was manipulated through 45 degrees flexion and 20 degrees abduction. External rotation and internal rotation were not employed, and the limb was placed in plaster-of-Paris, short spica. After two weeks, this was removed, and walking was painless. The amount of motion in the hip was not materially increased. Operation was suggested to the parents, but was refused, and the boy was taken home. August, 1906, boy returns to the hospital for operative treatment. X-ray examination at this time: Abduction 30 degrees, flexion 15 degrees, external rotation 90 degrees. The angle of depression of right femur calculated at 164 degrees; that of left femur, 125 degrees.

FIG. 1.—Skiagram tracing before operation, showing increase of angle of depression to 164 degrees on right side, and angle of elevation to 110 degrees.

MEASUREMENTS.

	Right Side	Left Side
Ant. sup. spine to int. mal.	29¾	28¾
Ant. sup. spine to tip. great troch.	5½	4½
Ant. sup. spine to upper patella border.	15¾	14¾

Length of lower legs on both sides the same.

The great trochanter on the left side lies in the Roser-Nelaton line, and Bryant's triangle presents normal isoscelesism. On the right side, the trochanter major is much below and behind its normal situation, and is difficult to palpate.

General Attitude.—The boy stands and walks with an abducted, externally rotated thigh, which causes a secondary scoliosis. He cannot bring his feet together, nor alter the position of his hip. Passive motion in the right hip is limited to a few degrees in any direction.

Diagnosis.—Considering the actual lengthening and the position of the right lower extremity, a diagnosis of coxa valga was made, as the

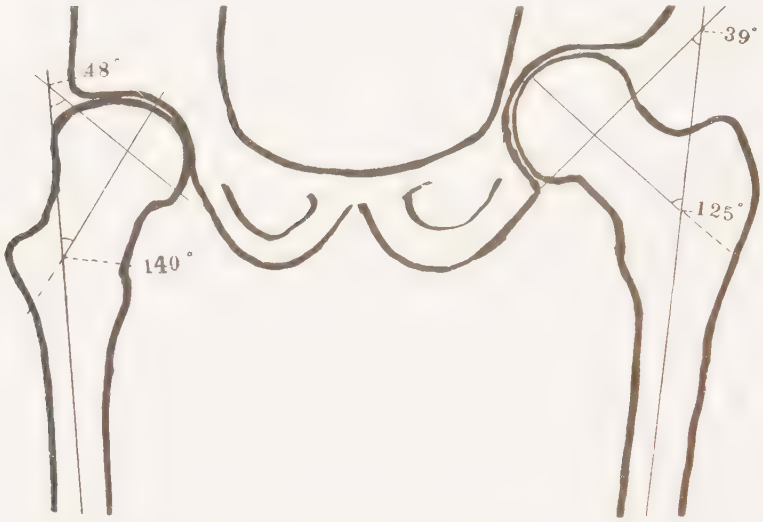

FIG. 2.—Skiagram tracing after operation, showing angle of depression on right side 140 degrees; angle of elevation 48 degrees.

lengthening of one inch can be accounted for by the increase in the angle of depression of the femur on the right side.

Treatment.—In November, 1906, an osteotomy was done on the right

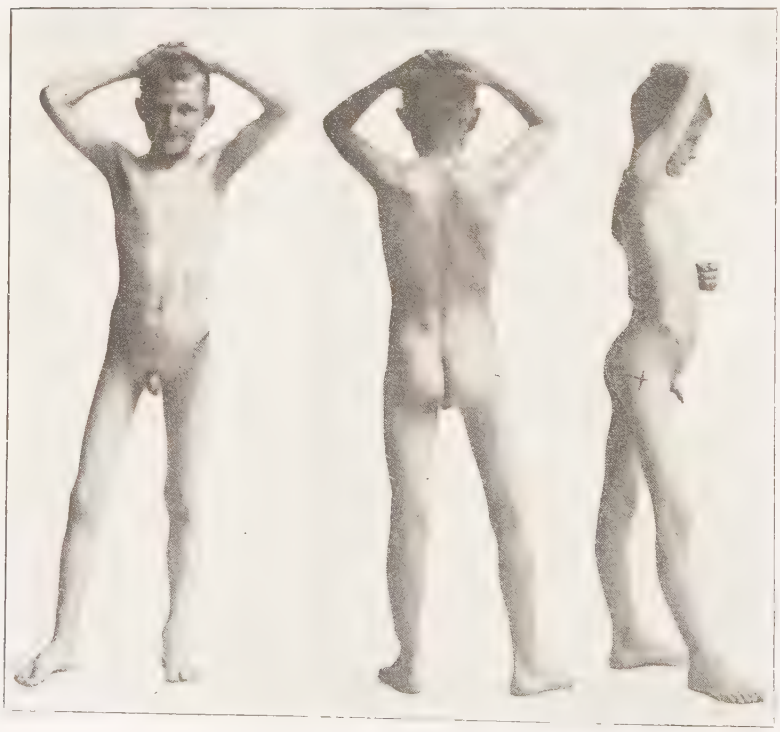

FIG. 3.—Photograph of case, showing abduction, externally rotated flexed position of thigh, with one inch actual lengthening right side.

femur, the osteotome dividing the bone just below the great trochanter. The bone was here divided transversely, thorough division having been accomplished subperiosteally; the lower fragment was rotated inwards to a position of 10 degrees internal rotation, and the thigh was adducted to 10 degrees adduction. The flexion of 15 degrees was reduced. In this position, the limb was confined in plaster-of-Paris for a period of six weeks. An X-ray examination was then made, which showed an angle of depression of 140 degrees.

MEASUREMENTS AFTER OPERATION.

	Right Side	Left Side
Ant. sup. spine to int. mal.	28⅞	28¾
Ant. sup. spine to tip great troch.	4¾	4½
Ant. sup. spine to upper patella border	15	14¾

FIG. 4.—Photographs taken after operation, showing improvement in position.

Position of Thigh.—Abduction, no degrees; flexion, 10 degrees; external rotation, 5 degrees.

General Attitude.—Boy stands with feet together, no distortion of trunk. Anterior superior spine equal, no pelvic tilting. Active motion in the hip not possible; passive motion limited to a few degrees. Walks without pain, and peculiarity of gait is much lessened.

This case represents traumatic coxa valga, in typical form. The injury sustained was unusual. None of the reported cases in the literature show such an injury. The case is interesting in that it shows the error of de-

velopment which will follow a sufficient disturbance of the relationship that exists between superincumbent weight and growth pressure. The boy having injured his acetabulum, was allowed to remain in bed during the early part of his recovery, with his thigh in an abducted, externally rotated position. This occurred at the age of five years. It is to be presumed that the epiphysis of the head became lodged in the process of repair, in the acetabular cavity, so that when the child began to get about, he assumed an abducted, externally rotated position, with his right thigh. Walking in this position, the strain thrown upon the upper end of the femur was abnormal, in that to compensate for his abduction, his weight-bearing line was transmitted directly to the long axis of the femur, by tilting his trunk. This abnormal force, acting through the years of greatest bone development, produced an opening of the femoral angle of depression, and in consequence an absolute lengthening of the bone. The object of treatment was to attempt a return of the normal femoral angulation, so that as future development takes place, the bone structure and external contour of the upper femoral extremity may approach the normal.

The further treatment of the case will have for its object active and passive manipulations of the hip, to increase the range of motion, and observations upon the angle of depression to discover what transitions it may pass through, as development proceeds.

Case II. Ununited Fracture of the Femoral Neck; Excision of the Femoral Head; Establishment of a New Joint.

This case is interesting principally in the fact that it shows a rather unusually favorable recovery from a condition which is apt to be considered hopeless from a surgical point of view.

The history is as follows: The patient is a woman sixty-two years of age. In the spring of 1905, she fell on a slippery sidewalk, and sustained a complete intracapsular fracture of the left femoral neck. She was put to bed and treated with traction and fixation. At the end of six months, union had not taken place at the seat of fracture, and surgical treatment was discontinued. She was encouraged to get up, wearing crutches and a high shoe. Locomotion, however, was attended with severe pain, so much so that she soon gave up any further attempts at walking. She lost a great deal of sleep, due to continuous pain and uneasiness about her right hip and thigh. She lost weight and appetite, and considered herself doomed to spend the remainder of her days in bed.

She was first seen April 10th, 1906, thirteen months after the injury. Physical examination revealed an emaciated woman of advanced years, heart and lungs normal, urine normal, arteries not showing any sclerotic change; her left thigh adducted twenty degrees, flexed ten degrees, and externally rotated. Marked atrophy about the left gluteal region, one and one-half inch atrophy of thigh, three-quarters inch atrophy of calf. Trochanter major prominent and situated two inches above Nelaton's line. Motion in the left hip caused extreme pain and was guarded by

muscular spasm. A radiograph revealed an ununited fracture of the femoral neck.

It was decided to operate upon the joint, and to adopt, after the region was exposed, the best method for securing stability at the hip, having in mind the use of a wire nail or the employment of silver wire to secure apposition of bone fragments; in case these methods did not seem advisable, to excise the femoral head.

Case II.—Illustrating range of motion and stability obtained in the joint formed after excision of the head and neck of the left femur.

Operation.—April 12th, 1906. A vertical incision six inches long was made over the region of the great trochanter. The trochanter being exposed, the muscular attachments and periosteum were elevated and the joint capsule opened by an incision along its anterior surface. Free

access to the hip joint being thus obtained, an examination of the region of fracture showed that the neck had been largely absorbed, leaving a ragged edge along its femoral extremity, and the same condition at the base of the articular surface of the head. The head was freely movable in the joint cavity. So little of the neck remained that freshening of the bone surfaces did not seem advisable. In consequence, the head was seized with bone-forceps, the ligamentum teres was divided and it was removed. The upper extremity of the femur was then rounded off subperiosteally, so as to produce a smooth, rounded surface. The thigh was strongly abducted, bringing the upper end of the femur into close contact with the acetabular surface. The joint capsule was firmly sutured with chromicized gut. The periosteum was united in the same

Case II.—Skiagram tracing showing ununited fracture of the left femoral neck. Before operation.

manner, and the wound was closed with interrupted sutures. A plaster-of-Paris spica bandage was applied, running from the toes to the umbilicus, holding the thigh in fifty degrees abduction and slight internal rotation.

The subsequent history was uneventful. The wound united by first intention. Very soon after operation the patient could be handled without eliciting the severe pain from which she formerly suffered. At the end of six weeks the plaster-of-Paris dressing was removed, and she was got up with crutches and encouraged to bear slight weight on her affected hip. July 16th, 1906, she left the hospital, being able to walk comfortably with the aid of one crutch and wearing a shoe elevation on the left side.

May 1st, 1907, patient is walking about comfortably, without sup-

port. She carries a cane for added sense of security, but does not consider it necessary. She is able to go up and down stairs, to attend to most of her duties without inconvenience. Examination reveals a thigh and calf only slightly atrophied; one and three-quarters inches actual shortening; a range of motion in the hip-joint closely approximating the normal. Stability of gait and standing. She wears a shoe with a heel elevated three-quarters of an inch on the left side. This she finds prac-

Case II.—Skiagram tracing showing result after operation.

tically obliterates her limp. Her general health has greatly improved, and she has gained considerable weight.

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THE HISTORY OF THE HOUSE; THE STRUGGLE FOR FRESH AIR AND LIGHT.

(Concluded.)

By George M. Gould, M. D., of Philadelphia.

So long as the family living room and the ox-house remained one hall, the men slept sometimes over the cattle; if there were two rows the men slept on one side, and the women on the other. When there was no hayloft, men and women slept on the floor of the hall, and, of course, immorality was encouraged.

We spend one-third of our lives abed, and yet few take sufficient thought of the history of the provision of wise bedding. What we call a bed was unknown to our ancestors. By our term bed we mean a bedstead. We still admit the power of history in the term "feather-bed," but the feather-bed introduced into England from France in the 14th century is today almost obsolete. What we call a mattress, our forefathers called a bed. The frame work, raised from the floor, upon which we now place the mattress and bedding, was unknown to the common people of the time of Shakespeare and Chaucer. The bedstead is not used by the refined and cleanly Japanese people. The English mattresses or beds were often expensive and elaborate, with the richer classes, covered with rich stuffs and quilted. Pillows and bolsters were also of the same materials. This is shown in their careful mention in the wills of Shakespeare, and even in those of nobles and kings. In all primitive times, even with the rich, and down to later centuries with the poor, the bedding was made of dried rushes, ferns, heath, hay, straw, leaves, boughs, etc., laid upon the floor next the walls of the hall. Writing in 1678, Aubrey says that in English houses, "when night came, straw, dried rushes, heath, or dried ferns, were spread upon the floor; and those unprovided with beds or couches laid themselves down each under the bench or table upon or at which he or she sat." The more comfortable (but always removable) mattress, or feather-bed, etc., was a step in advance. The development of the bedstead is a long story and a most interesting one. I regret that I can only epitomize it here. Cleopatra had an ornate bed and bedstead. The richer Greeks and Romans had narrow or single couches, their *triclinium*, or dining-bed, used about the dining table in the day, and as sleeping couches at night. As civilization crept northward and riches began to produce comforts and prides, people grew tired of sleeping upon the floor, upon straw, or even upon mattresses. In the 16th century ox-houses there were beds, blankets, sheets, mattresses, pillows, etc., but no bedsteads. The big family chests for linens and more precious holdings were used as a sort of bed at night, and possibly this gradually developed into a sort of bedstead or raised basis for the bedstead. The "bedstock," a movable structure, followed; a later stage was what we now call a "bunk," the bedstead built into the

room like a steamship berth. Then followed the enlargement of a part of the room as a bedstead, a sort of room within a room. The size of the bedstead was increased to a "double bed," and soon the exigencies of cold and space, and the natural desire to raise the bed above the dirty floor, brought about the bedstead as we know it, for the whole family. And not only for the family, but for the guests and strangers. As riches grew there were three bedsteads, the so-called "Trinity," that for the lord and his immediate family; that for the closer attendants, and lastly that for the lower servants. The great bed of Ware, now at Rye House, Broxbourne, Herts, was a monster, and monstrous. For a time the cult of the bedstead was fashionable, and great sums were spent upon its construction, furnishings and ornamentations. Two causes operated to form the custom of having curtains about the bed, the protection from cold draughts, and the desire for privacy. The state bed of George IV., designed by Heppelwaite, shows the extreme, and our American colonial four-poster was a better bad. It is remarkable that the growth in manners and morals so long permitted the use of one bed by several persons. We have today reduced the number to two, and our "double bed" still lingers as a barbaric relic of our barbaric origin. The history of the bed is a sad one. The Orientals, and especially the Japanese, solve the problem much better than our occidental civilization. Until metal might replace all wood in the bedstead, our ancestors, had they kept their floors clean, should have slept on mattresses, rugs, etc., placed on the floor. In China millions of people today walk about their huts on little islands of dry ground between which flow the canals of slops and waste water. Our Teutonic and English ancestors were almost as dirty as regards the disposal of waste and the filthiness of their floors. Only the Japanese learned to keep their floors and beds clean. One may suspect that the nomadism and tent-dwelling of the Orientals, with their constant moving about, was largely due to the necessity of escaping from bedbugs and the accumulation of filth. The curse of all Anglo-Saxon bedsteads for at least the last 500 or 1000 years has been the bedbug. That little animal has played a role in history that few can understand or estimate, greater, I suspect, than any king or war. Poor Mrs. Carlyle was unable to have much peace of mind or body at least when traveling in the best way in England only fifty years ago, because of this monster of Anglo-saxon filthiness. So long as wooden bedsteads were in use it was next to impossible to do away with the bedbug, even if there was much wish to extinguish him. The English matron had too little wish of the kind. The result was a gradual weeding out of sensitive persons, because of sleeplessness, and the encouragement on Darwinian principles of the existence of the stolid, thick-skinned, snoring, full-blooded sleepers, who had no nerves and plenty of blood for the parasites. The bedbug has had more to do with the formation of English character than climate and food, or any other several causes combined. The extensive draperies

and curtains of the bedstead gave further nesting places, if they were needed, for the parasites. The large beds also encouraged immorality, as all readers of medieval literature know. Only in the latter part of the last century has there been some progress in the war upon the bedbug by the plastered and separate rooms, and the single and metal bedstead. The metal single bedstead which can easily be kept clean and free from bedbugs is an important means to a better civilization. Wire spring mattresses are now made that will not "sag" under any load. They may be unhooked, rolled into a bundle, and stuck in a kettle of boiling water. How advisable such a device and such cleanliness! At the recent Sanitary Congress in Glasgow, Dr. Fyfe exposed the horrors of wool-flock, the material used by the poor for mattresses or beds. The rags and old clothes of tramps, the refuse of households and filth holes is dumped into a machine, without any cleaning or disinfection, and cut and torn to a confused mass of fibers and ordure called flock. The water in which a sample was washed was worse than Glasgow sewage,—and 78 per cent, said Dr. Buchanan, of their poor people sleep on beds filled with this dried sewage.

For a thousand or two thousand years the house of our forefathers had been, in colder weather, a dark hole illuminated only by the faint gleams of the hearth-fire of charcoal or twigs, or of the rush-lights and dip-lights which could serve only to make the darkness a little less obscure. It seems strange that life could have attained the poor dignity it had under such conditions. Cataract and blindness, "blear-eyedness" (conjunctivitis), came on early, under such circumstances. Note especially that no civilization, as we understand it, was generally possible. Reading and writing could not have developed into learning, psychical light was impossible without the physical light; it could not have come to fruition without glass windows. No discovery of the ages was of more value than cheap glass. The very word *window*, is a pathetic proof that it was the need of ventilation and not of light that begot the device. It means *wind eye*, or wind hole, its main purpose being to admit air instead of light. The loop-holes, or lowp-holes of old English barns, being narrow vertical slits, or little holes, show the same explanation. Among the Norsemen there were no such lowp-holes in the walls, but there were *louvres* or holes in the roof covered with the caul of a new-born calf. This showed the need of light rather than of ventilation. In England in the late middle ages the wall holes became "fenestralls," and were a kind of framed blinds of cloth or canvas. In the time of Henry VIII. linen was used which had been dipped in oil. Some glass had been a little used in the great houses from the time of the Romans, but it was so dear that even two or three hundred years ago the panes in smaller houses were very small and some of them were made of wood, cloth, etc., others in the same sash being of glass. In the 16th century the rich vied with each other in having large and numerous windows. But even then glass windows did not pass to the heir as part of the house but only to the

personal representatives. They were movable casements easily taken out. The smaller the window the older the house, is still a rule of judgment in English architecture. The window tax in Continental Europe, levied down to our own times, is an evidence of the sad stress of life, and the brutal necessities of government. The window tax was repealed in England in 1851. All early windows were hinged; sliding window panes are modern.

The history of civilization as related to the house may thus be summed up as consisting of four epochs: 1. That of securing protection and warmth by means of the single-roomed, windowless hall; 2. That of the creation of the chimney; 3. That of the making of glass windows; 4. That of securing ventilation; and this is the stage in which we are now living and shall live for centuries to come.

From the beginning of history the greatest obstacles to the opening up of new nations, especially in tropical and semi-tropical countries, and the spread of civilization, have been malaria and yellow fever. Malaria chiefly dictated the location upon hills of the Italian settlers, with a multitude of subsequent social customs and laws. Among savage peoples it has been a no less dominant factor, and in new countries it has crippled the energies of the people and sent millions to death, each century. Malaria has been the great ally of barbarism, the enemy of social progress, the unconquerable foe of medicine. With its quinin the profession had long waged a losing battle, but now the victory is possible to science, for it was a battle, if we had but known it, against—the mosquito!

The malarial parasite is conveyed from man to man through the agency of the mosquito, of the genus, anopheles. The mosquito receives into its stomach from man some blood containing the parasite, which forthwith goes through certain developmental changes, and in the end the germs make their way to the salivary gland of the mosquito, and thence get transferred to a new victim. The mosquito is not only the carrier, but also the intermediary host of the malarial parasite during an important part of its life-history. These facts have been ascertained by immensely patient work on the part of Laveran, Grassi, Celli, Ross, Manson, etc.; the steps gained by reasoning and by microscopic investigation have been confirmed by two carefully planned experiments. Five people spent the worst months of the year in a highly malarial district in Italy, taking no quinin and living out of doors except when the mosquitos feed; i. e., just before sunset and in the night. At these times they were carefully protected by wire blinds to their windows and doors, and mosquito curtains around their beds. They had no malaria. The second experiment consisted in feeding mosquitos of the anopheles group on patients suffering from malaria in Italy, sending the infected mosquitos home, and letting them feed on two of the heroic investigators, who forthwith had well-marked attacks of malarial fever.

In league with malaria has been its powerful and faithful neighbor, cholera, or yellow fever, more daring, dashing and suddenly killing. Since 1793 the disease has been the cause, in our country alone, of

no less than 100,000 deaths, 41,348 of which occurred in New Orleans, 10,038 in Philadelphia, and 7,759 in Memphis. Between 1853 and 1900 it caused 35,952 deaths at Havana. Since the practical application of the knowledge gained by the work of Reed and his associates the disease has been practically eradicated. And yellow fever is also due to a mosquito. To the everlasting honor of the United States, and of American medicine, the role of stegomyia fasciata in the transmission of yellow fever was established by American physicians, and thus the certain way made clear of ridding the world of the horrible disease. There is no hero in the world's work more deserving of honor and monuments than the noble martyr, Lazear, who allowed himself to be bitten by the infected mosquito, well knowing that his probable death would substantiate the truth upon which so many lives depended. He died of the disease twelve days after his sublime test had been made. Dr. Walter Reed, the American boy of whom we are all proud, planned and carried out the investigation which established the great truth. The profession and the nation owes him honor and the splendid monument now planned.

The relation of yellow fever and malaria to the house is evident. In most new tropical and semi-tropical countries the entire question of ill-ventilation, upon which ill-health depends, has been dictated, unconsciously of course, but not the less absolutely, by the mosquito. The aim has been to exclude the malaria, or bad air, and especially at night. About one-half of the lives of the inhabitants was spent in doors. But with the air came the deadly mosquito. Now night air is purer than day air if the mosquito is excluded, and so the poor blunderers excluded both the good air and the bad air, and lived in an air made foul by themselves. The last Baedeker ordered travelers in Italy to shut the windows at night. What all should have done, and Baedeker should have known for the last several years, was that a mosquito netting should have been used, the good air freely admitted, and the bad air blown out of the sleeping rooms. How slow we are to recognize the problem and face the truth is illustrated by our recent experience in Panama. After a ludicrously false and expensive start there, our government has at last recognized that housing and sanitation are the primal necessities. We can not dig the canal with dead men.

Perhaps the work of the common housefly has been as death-dealing in propagating disease, and *musca domestica* is everywhere, North and South. In January and February of 1905 there were a quarter of a million deaths in India from plague, and it is possible that the flea is the carrier of the germs of this disease just as the mosquito is of malaria and yellow fever. The bedbug is said to be an American invention, but all Oriental nations are tormented by the flea. Even the Japanese mats are filled with them. A commission of eminent scientific men is investigating this problem.

In all northern nations the struggle for warmth, and the expense of heating houses, brought about the same ill-ventilation as did the mosquito in the more southern climes. The vast majority of houses

in Europe and America are stench-holes and breeding places of disease because of the foul air of badly ventilated rooms.

The two causes combined have thus brought about the century-long habit of badly ventilated houses in the entire civilized world. The better class of householders, by means of attention and wealth, have been able to secure good ventilation and cleanliness through a hundred devices and by the waste of much heat. With all the devices that architects and engineers have made, the heating and ventilation of our homes is too expensive, too wasteful and too blundering. One of the greatest benefactors of mankind will be he who will enable a poor family to heat its house and at the same time supply it with pure air at one-tenth of the expense now demanded. It can be done, and must be done.

For what does ill-ventilation mean? It means a hundred minor

Fig. 34.—The "Home" of a million children.

diseases and types of ill-health encouraged, and the consequent preparation of the soil for the terminal diseases which invite Death himself. But more than all else it means the direct production of those diseases of the lungs which cause almost one-third of all deaths. Bad ventilation means pneumonia and consumption. As to pneumonia it has in late years been increasing so fast and becoming so deadly that in many cities the death-rate is greater from it than from consumption. But what is the ultimate cause of pneumonia? The late Commissioner of Health of Chicago truly says that it is "a disease of modern architecture," i. e., of ill-ventilation and filth. One million people die in the world every year from tuberculosis, or about 3000 every day. Ten million people in the United States, now living, will die of the disease. Every third or fourth adult now dies of consumption, and as a whole about every seventh death is caused by it.

In coughing the consumptive emits several hundred million bacilli every 24 hours. It has been said that 98 per cent of people have some tuberculosis. And all these deaths are due to the house, its bad ventilation, and the over-crowding, etc., which goes with it.

Cold, darkness and filth—these are therefore ancient enemies of our life and happiness. The struggle of ages has been against cold, and to secure an air-tight house. By means of plastering and glass windows it was at last secured; and also the light necessary to banish the more evident kinds of filth. But tragedy ran through it all because it was not seen that air may be really the filthiest and the most dangerous of all filthy things. In that blunder is our civilization now caught, and the great duty of physicians and philanthropists generally is to undo the terrible mistake. In the entire history of the past the greatest and best educational influence in the lives of the young was the home. But in the great city there are no homes. The tenement and the apartment houses can not be called homes in any true sense of the word. Next to the home in molding the child's mind were the playgrounds, the garden, orchard, fields and woods, to which the boys and girls could fly. All this for the child living in great cities is also gone. The new education, to some extent and in some poor ways, is seeking to bring back to the child these lost most valuable things. The city kills the home.

In New York City there are about 350,000 people living in 40,000 tenements without windows opening to the outer air. The results are shown in the statistics of death and in the wretched people. In Philadelphia, the city of homes, there is scarcely a windowless room, and there are about 300,000 separate dwellings. But we dare not forget that however far away we allow indecent living, our filthy sin will be punished by disease. Any one of us may be, and all of us together, will be punished for the acts of a diseased sinner in Butler, Pa., or in Ithaca, N. Y. Preventive work is a state affair and can be undertaken on a large scale only by municipal and state authorities. Scattered families may know enough to sleep with windows open, but a window opening on a foul air-shaft, or into another close and dark room, is still a thousand miles from the ideal. The "spit-cup," the disinfectants, the paper napkins and bags, which are burned up, are within reach of the thousands; but they will avail little when the whole building is rotten and reeking with infection. For wide streets, sanitary houses, and systematic disinfection, we must look to boards of health, tenement commissions, city councils and legislatures. Each of us, therefore, is responsible for the sorry but bettering condition of things in New York City.

In the famous "lung-block," the uncleaned walls and floors were the best places for holding the germs of tuberculosis bred by the millions by the former dying occupants. It housed nearly 4,000 human beings, and in nine years 265 cases of tuberculosis have been reported from it. In Chicago they have a rival of the "lung-block," called "Consumption Row." One hundred and thirty-eight cases of consumption received at the Cook County Hospital in the last four

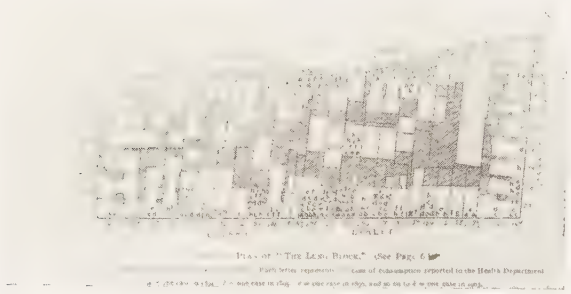

FIG. 35.—The famous "Lung Block," housing 4000; in nine years 265 cases of tuberculosis were reported from it.

years, came from this block. And yet the deaths from tuberculosis are in some small cities twice as great as in New York City. The City of

FIG. 36.—"Consumption Row," from it 138 cases of consumption were sent to Cook County Hospital in four years.

Philadelphia has much to be proud of, and much to be ashamed of, but if it is in politics "corrupt and contented," its people, of all in the world, are

FIG. 37.—Tenement house built by Henry Phipps, combining "business," charity and Lygiene.

the best housed and in this way contented. It is proverbially the City of Homes. It has solved the house-problem the best of all. A typical Philadelphia, or model house, for workmen's families, rents for from $10 to $16 a month. That is what is wanted in every city and village of the land.

Among the most far-seeing attempts to deal with the tenement house problem is that of the establishment of tenements on a plan uniting sound business principles and charity, instituted in Washington, and especially that of Mr. Henry Phipps in New York, who has given a million dollars, the rents to go to extension of the system. The negro population, foolishly and suicidally excluded from many districts and otherwise unjustly treated, is included in Mr. Phipps' noble scheme. In this, said to be the most perfect tenement in the world, light, air and sunshine is in every one of these two, three and four-room suites.

But, of all the peoples of the world, the Japanese have solved the problem best. And that is the cause of their success, and of their

Fig. 38.—Kitchen of a three-room suite in Phipps' Tenement; rent, $3.50 a week.

coming success in all the world's work. All success, national or personal, rests upon health; and health depends upon the house, the purity of its air, its cleanliness, physical, personal and social. A typical Japanese house has plenty of air and light; it is far cheaper even than the Philadelphia model; it is what no cheap house in civilization is,—beautiful! Three pairs of sapling tops were crossed in its original construction! The Japanese have learned how to clothe the body and keep it warm while keeping the air of their houses cool and pure. The air of all our houses and cars is too warm, and is impure. The poorest Japanese has plenty of light in his house; our poor have none. There is no filth on their floors, in their yards, or closets, while our people, even the well-to-do, are usually filthy. The Japanese have no "beds" and so they have no bedbugs and other bugs. In every farmhouse of our land the air is dead, the windows closed, the rooms dark and stuffy. And so our death rate is far higher

than that of the Japanese. They also have compulsory vaccination, while we allow the wild fools of anti-vaccination to kill thousands every year and maim thousands more. The Japanese and the Finns bathe the body daily. How is it with the rest of the world? And with all our money and "public works," we can not put pure water into our houses. At least 50,000 of our people are killed each year by unnecessary typhoid fever, and the unnecessary disease costs us about $100,000,000 a year! Before we leave the Japanese house we should note that this first of all warlike peoples exhibits the first systematic and successful attempt, as Major Seamon has shown, to save its soldiers' lives and health and to win battles by so doing.

The housing of its citizens, especially of the more impoverished,

FIG. 39.—A typical Japanese house, cheap, clean, airy, well lit, beautiful.

should be the vital concern of every municipality, and of every good citizen. No house should be built except upon the advice of an expert in sanitation. Every architect should be held by law to have made a thorough study of the methods of modern preventive medicine. Health boards should be strengthened, paid, and well paid, then held accountable for the diseases that should have been prevented. If one could speak to the lay world he should say: "Take the medical profession into your confidence and your service. Abolish your selfish quacks. They build no hospitals, except to cheat you and your sick. They do not care for or believe in preventive medicine; the less of it the better for them. That is the distinction between a good physician and a quack. The first labors without pay to extinguish his own calling, to commit professional suicide, by preventing the diseases which kill you. The quack knows nothing and cares less for that; and yet you allow Eddyism, osteopathy, patent-medicine

drug stores, vibralogy and infinite tommyrot to crowd your physician friends out of practice, and you pay your quacks a hundred times what you pay your medical friends. What a shame! And your death rate could easily be reduced 50 per cent, and your morbidity rate 75 per cent."

As to tuberculosis, it is a curable disease, and the establishment of special sanitariums is to be encouraged. Even the roof of ordinary hospitals in the city may be used, and if that is not obtainable, life out-of-doors at home is curative. Consumption hospitals, like that at Denver, should be built where it is high and dry and sunny. Cold is no disadvantage, and even snow, as at Muskoka, makes no difference in the cure. Expensive buildings are not at all necessary, as a tent may serve the same purpose.

But hospitals, sanitariums, and even home treatments, are not the chief needs of the hour. Climate, we are learning, is not the sole or chief requisite in the treatment of tuberculosis. The segregating or traveling treatment of disease is only a makeshift. But if hospitals and sanitariums tend to become permanent ends in themselves, they can grow into evils. Sunshine and pure air are needed, but abolish smoke and dust, and sunshine and pure air may be had even in New York City. Social conditions, extreme poverty, uncleanliness, bad ventilation, etc., in the home create disease. The cure is not to take the patient away and leave the bad house to reproduce new patients who are again to be taken away, and so on forever. The cure is to make every house a sanitarium and a hospital and a home combined. The aim of every true physician is to prevent disease as well as to cure it. Consumption can even be cured at home, and it can always be prevented. Sanitarium life can be carried too far. If it neglects the reform and the prevention which can be effected in the home-life, it may become an evil. All the sick can never leave home to be cured, but all the homes can be made healthful, and when so made, disease will be prevented.

We need, therefore, in every house these fundamental things: Pure air, pure water, pure sunshine, pure love. In the greatest of all historic struggles, that for the creation of the home, these things have too long and too sadly been neglected, or found impossible to secure. Even in the best of modern homes they are, in part, too frequently wanting; in the majority they are amazingly absent, and in the worst they are replaced by foul air, germ-laden water, darkness and degradation, which breed disease and increase the death-rate. Air, water, light and love are possibly the most abundant blessings of the world, and civilization—so-called—has made them the hardest things to obtain. Ours the duty, the necessity, the pleasure, to remould our domestic lives so that each shall have them in splendid profusion. As it has ever been, the family is the elemental and primal unit of society; the home its out-working, and the house its mechanism. Upon these rest the health, dignity, nay the salvation, of social existence, that dream of Christian ethics and religion, the kingdom of God on earth.

MEDICAL AND SURGICAL PROGRESS.

OESOPHAGOSCOPY, BRONCHOSCOPY AND GASTROSCOPY.

A REVIEW OF RECENT LITERATURE.

By Jesse S. Myer, M. D.

1. The Advance, Aims and Importance of Oesophagoscopy.—Glücksman (*Berliner Klinische Wochenschrift,* June 6, 1904).
2. Further Reports on Oesophagoscopy.—Glücksman (*Berliner Klinische Wochenschrift,* February 19, 1906).
3. Oesophageal Stenosis.—Rosenheim (*Deutsche Klinik,* 1905).
4. Foreign Body in the Left Bronchus Two Years; Direct Extraction; Recovery.—(*Berliner Klinische Wochenschrift,* December 23, 1907).
5. Gastroscopy; Report of Additional Cases.—Jackson (*Journal Am. Med. Assn.,* October 26, 1907).

Only in the last five years may œsophagoscopy be said to have found its own as a diagnostic and therapeutic aid in diseases of the œsophagus. Until then it was necessary, in order to remove foreign bodies from the œsophagus, to work in the dark with long forceps, or to subject the patient to one of the most difficult and dangerous operations in surgery. The œsophagoscope has at once reduced the danger of the removal of foreign bodies from the œsophagus to a minimum.

For those thoroughly versed in the technique of œsophagoscopy, the procedure is one practically free from danger. Because of the skill required in the manipulation of the instrument, and because of the difficulties of interpretation of the findings, the œsophagoscope has not been as generally used as one might have expected. The eye is to the diagnostician the most useful of the senses. It is surprising, therefore, that the literature on œsophagoscopy and bronchoscopy during the past three years has been as meagre. Yet, through the constant efforts of a few the instrumentarium has been almost perfected and its application reduced to a science.

Kussmaul was, in all probability, the first physician to view the mucous membrane of the œsophagus in its entire length. He took advantage of the talents of a so-called "sword swallower," and introduced a hollow tube down to and through the cardia and was able to view the mucous membrane as he withdrew the tube.

Störk and McKenzie and others, in spite of persistent efforts, were unable to make practical applications of the observations of Kussmaul. Von Miculicz may be justly considered the author and inventor of the present method of intubation of the œsophagus by means of a long hollow tube armed with a mandarin. Von Miculicz introduced the tube with the mandarin in position and upon its removal was able to view the lower most portion of the œsophagus. As the tube was withdrawn he could view the mucous membrane of the œsophagus in its entire length.

Von Hacker and Rosenheim were pioneers in the application of his methods. To Rosenheim belongs the credit not only of many valuable

modifications of the instrument, but to him also belongs the credit for careful observations in the physiology and pathology of the œsophagus through the œsophagoscope. Among other things he introduced methods of local treatment, by means of astringents and anesthetics, of carcinoma of the œsophagus and by these means could often enable patients with carcinoma of the œsophagus to swallow food to the end of life.

Kraus and Gottstein contributed much toward the perfection of the methods and presented the details in a splendid work on the subject. Kelling invented a flexible tube for the examination of the œsophagus, which, however, has never succeeded in supplanting the straight one.

Killian and Von Eichen have not only contributed much to the perfection of technique and instruments for œsophagoscopy, but have taken perhaps the foremost rank in the application of the principles of the œsophagoscope to the examination of the trachea and bronchi.

Glücksman in two articles cited above gives an excellent exhibition of what may be accomplished in diagnosis by means of the œsophagoscope. He presents in both of these articles a large number of photographs of the field viewed by the œsophagoscope, showing beautifully the pictures of benign and malignant strictures of the œsophagus, diverticuli, etc.

The usefulness of the œsophagoscope depends, as does that of all of our finer methods of diagnosis, upon the operator's ability to interpret his findings. This is true of the cystoscope, ophthalmoscope, x ray, etc., and it is only through constant practice and frequent examinations of the mucous membrane of the œsophagus that one may develop this power. Glücksman demonstrates well in his articles the perfection that one may attain in the art of œsophagoscopy.

Bronchoscopy has been the natural outgrowth of œsophagoscopy, and the results which have been attained, most especially in the diagnosis and removal of foreign bodies from the bronchus, have been truly marvelous. Prior to the development of the bronchoscope, especially by Killian and his school, these were practically hopeless cases, especially if the foreign body entered the right or left bronchus. An exceedingly large number of cases have been reported in which foreign bodies have been removed from the bronchi of both children and adults, in some cases shortly after their introduction and in others even years after the introduction.

Von Schroetter, who has devised an instrument of his own, reports here the removal of a foreign body which had been in the left bronchus for two years. Cases such as this one could not only not be cured previously, but even the diagnosis was impossible, because it has been shown that foreign bodies may exist in the bronchi for years, resulting in abscess formation with all of its unpleasant symptoms, and yet the patient may not be aware of the presence of a foreign body, nor able to tell, in some cases, how and when it was introduced.

Oesophagoscopy and bronchoscopy are considered by many, who are unacquainted with them, barbarous procedures. But, those accustomed to their application use them with the same freedom that one does a proctoscope or similar instrument, and, while the introduction produces great discomfort on the part of patients because of the position which must be assumed, yet they yield to it readily where the use of the instrument is indicated and suffer no ill consequences as a result of it. The symptoms produced by obstructions of the œsophagus are so unpleasant that patients yield readily to any procedure that promises them any relief.

Rosenheim, in an admirable article quoted above, reviews the various

forms of stenosis of the œsophagus and advocates as a routine procedure in those cases, the use of the œsophagoscope. One needs but read the recital of his cases to recognize at once the great usefulness of such an instrument. Some authors advocate the sitting posture with the chest thrown forward and the head thrown back, while others still, and Rosenheim belongs to this number, advocate the lying posture with the head hanging over the edge of a table. This is entirely a matter of preference, both methods yielding good results.

In 1881, Von Miculicz examined through the instrument devised by him the interior of the stomach, and prophesied even at that time that this would become a useful method of examining the stomach.

Glücksman, in his article in 1904, considered the process an impractical one, because of the dangers to the vagi through stretching the intradiaphragmatic portion of the œsophagus. There are those, however, who advocate today the use of the gastroscope and maintain that a considerable area of the stomach is accessible to this instrument.

Jackson is perhaps the chief promulgator of the use of the gastroscope in this country. In this article he presents a report of a number of cases in which he has applied the gastroscope successfully and presents too, an ingenious x ray picture showing the explorable area of the stomach. Through moving the head from side to side, with the gastroscope in position, it is possible to observe from one-half to three-quarters of the total mucous membrane of the stomach. While he asserts that there are many technical difficulties, yet, the method is one of great value and this should not be permitted to limit the usefulness thereof. Profound anesthesia of the patient is absolutely necessary, because of the straining and retching which would be produced by the introduction of an instrument into the stomach. Profound anesthesia and the proper position of the patient, which the author describes minutely, eliminate many of the dangers and much of the difficulty in the application of the gastroscope. He believes that "gastroscopy can bear with ease all the responsibility for all the deaths it will ever produce either by vagus reflex, perforation, hemorrhage or otherwise, etc."

The œsophagoscope and bronchoscope are, in the hands of many, invaluable instruments. In the hands of a few, the gastroscope is proving of similar value. We doubt not that the next few years will render it a most important adjunct to the diagnostic instrumentarium.

THE SERUM REACTION IN SYPHILIS.

A REVIEW OF RECENT LITERATURE.

By Carl Fisch, M. D.

1. Klinische Verwerthung der Serum Diagnosis bei Syphilis.—M. Wassermann and George Meier (*Deutsch. med. Woch.*, 1907, No. 32).
2. Der Gegenwaertige Stand der Serodiagnosis in Syphilis.—A Wassermann (*Berl. klin. Woch.*, 1907, No. 51).
3. Syphilitische Antikoerper in der Cerebrospinal Fluessigkeit in Paralysis.—J. Morgenroth and G. Steitz (*Virchow's Archiv.*, Vol. 188, H. 1).

4. C. Levaditi (*Annales de l'Inst. Pasteur,* 1907, *and Compt. rend. Soc. Biol.,* 1907).
5. Ueber Antikoerper Befunde bei Lues, Tabes and Paralysis.—Weil and Braun (*Berl. klin. Woch.,* 1907, No. 49).
6. Erwiderung gegen Weil und Braun.—*Julius Citron* (*Berl. klin. Woch.,* 1907, No. 50).

These references do not represent the whole of the literature on the theory and practical application of serodiagnosis in syphilis; they were selected as guides to the rest of the publications on the subject. The immense importance of the study of Wassermann and Bruck of the so-called phenomenon of binding of complements, first discovered by Bordet for bacteria, consists in the establishment of the fact that not only bacteria as such will give rise to it, but also watery extracts made from them, containing their body substances. The complement binding or absorption occurs in the union of an antigen and an antibody, thereby causing the disappearance of the complements in active serum. The demonstration of this process is made by the combination of a mixture of antigen and antibody with a hæmolytic system. While the absence of the reacting substances allows of a full hæmolytic effect, hemolysis is prevented when both are present. This reaction is highly specific for the specific character of the bacterial extracts or antibodies investigated. It thus opens the way to determine with great certainty, the specific character of infectious diseases. The method itself is very complicated, and must be surrounded by a great number of controls to exclude sources of error. If done with regard to the latter point, the results are conclusive, as has been demonstrated for a great number of pathogenic bacteria and proteid substances. The capacity of the reaction is very great and allows of definite interpretations with very small quantities of material.

The application of this method to syphilis, proven to be an infectious disease with the characteristics of other such diseases, although the causative agent of which has not been cultivated and is not yet in reach for direct investigation biologically, promised success. The extracts of organs of active lues must contain antigens and later on antibodies. The latter can be produced by animal inoculation with luetic products.

Wassermann and Bruck very soon found a typical reaction in the serum of luetics in a number of cases. Antibodies were more frequently demonstrated than the antigen. Careful controls showed that the reaction was specific, and in obscure cases was confirmed by later developments in some of the cases. The cerebrospinal fluid was examined also, with the same result; it appeared to them that the latter material was more favorable than the serum as it often gave a positive reaction where the serum was negative. Citron has lately demonstrated that with a slight change of the method it is possible to obtain the reaction in any syphilitic serum and that it is not necessary to resort to the cerebrospinal puncture.

Control investigations by many observers have fully confirmed Wassermann's statements. He himself, together with Plaut, then took up the question of a problem, much discussed and fought about, that of the etiology of the so-called parasyphilitic processes, especially the conditions of progressive general paralysis and of tabes. While clinically the opinion has been held for a long time, and while statistics have added to this opinion to an almost convincing scale, a direct proof for this connection or causation could not be given. The objection that specific treatment does not materially influence tabes and paralysis, although in cer-

tain cases it has a beneficial and retarding effect, cannot be considered in consideration of the pathologic essential and permanent changes that have taken place when the diagnosis is made. By Wassermann's method a positive reaction is obtained in almost every case of paralysis and tabes; the percentage of the latter in this class of parasyphilitic conditions is rather greater than in the primary and secondary and early tertiary stages. The quantity of antisubstances present in them is larger than in the early periods of syphilis, due perhaps to a lasting biologic change of tissues influenced by the luetic process, a hyper-production of specific substances.

So far these remarks mark the result of the investigations of Wassermann and his co-workers and of many independent observers. The uniformity of the results is great. Certain publications have attempted to show unreliability of the method and, mainly, that its result is not absolutely specific. As far as paralysis and tabes are concerned, of course, the coincidence of the presence of a positive reaction with the disease does not logically mean a causative relation between the two. That this relation exists cannot be directly proven, although the almost regular co-existence of both factors cannot be explained as far as our knowledge goes, in a more probable form than as of a causative nature, causative meaning simply a gradual change or development of a single process in which very diverse phenomena, apparently heterogeneous in character, attract our attention, while the slow current of changes escapes it.

That the serum reaction of syphilis is one of the most important additions to our knowledge of dealing practically with a number of problematic conditions, so far obscure in character, and therefore almost unmanageable, in prevention and when developed, is at once clear. The fact is, that this reaction is, for practical purposes, the most reliable diagnostic means of interpreting otherwise unexplainable disturbances. In the majority of cases the correctness of the diagnosis is established by the further development of the disturbance. It will play a great part in the future study of clinical riddles. There is one thing to be emphasized. The complex character of the method, given by the necessity for a great number of different single determinations, all of them to be carefully carried through and calling for an absolute familiarity with work in the study of serum problems, will take it entirely out of the hands of the practitioner and limit its performance to well arranged institutes. The material used has to be under constant control and is, by the way, often difficult to procure. The liability of introducing a source of error is so great, that a perfect familiarity with and a full understanding of all of them is the condition that alone allows of a definite conclusion. The reason for some failures that were reported, and even for the assertion of seeming non-specificity of the reaction, is faulty execution or ignorance of the possible sources of mistakes. For practical purposes, when correctly performed, a positive result is definite of an existing active or latent luetic process. Negative results in clinically certain syphilitic conditions may occur. This is due to individual systemic conditions of the patient and in most of them seemingly to the effect of specific treatment (mercury), although this latter point is not proven.

A problem that does not concern the practical side of the question, which is established, is the scientific explanation of the process going on in the reaction. Of course in the beginning of all this work, the next thought was that the character of the substances acting on each other was that of the well known immunity substances, like amboceptors and

receptors. In the beginning, even the whole reaction was brought in connection with the process of præcipitin reaction.

The latter, first maintained by Bordet, later by Moreschi, could be excluded. The question, however, is: Are the two reacting substances, the antigen and the antibody, directly the product of the spirochæte pallida? We have, with the impossibility of obtaining pure cultures, no means to determine this point; we only know that the investigation with syphilitic material, leads to the same results, as in that with other well-known and cultivatable microörganisms. The doubts of this character of the substances discussed arose by work of Levaditi and others. The extracts of the liver of a syphilitic fetus are the material of predilection used in the controls of the reaction. Levaditi found that an extract from a normal liver also resulted in the stopping of hæmolysis, although only to a slight degree. There are other facts known—that antigen-like bodies occur without syphilis being present. This has suggested to Wassermann and others that the specific substance is not a product of the spirochæte, but some tissue ingredient that specifically is acted upon by the virus, and by this action is stimulated to multiplication and increase in quantity, or perhaps only by the production of a higher degree of affinity to the virus. Weil and Braun have in special investigations of this question come to the conclusion that the reaction is not that of an amboceptor and receptor, or of an antigen and antibody, but some physical or chemical process. Their method varied greatly from that of Wassermann, and, as the latter has shown, cannot be accepted as giving conclusive results. Certainty of decision on this point will be impossible until we are in possession of pure cultures of the spirochæte pallida. The uncertainty about the real nature of the reacting substances has no influence on the practical reliability that is recognized as conclusive. The theoretic side of this problem will be further studied and investigated, if not for syphilis, for other cultivable microörganisms. As the reaction is identical for all of them, an explanation given for one will give the explanation for all.

THE TREATMENT OF PSORIASIS.

A REVIEW OF RECENT LITERATURE.

By J. J. Houwink, M. D.

1. The Treatment of Psoriasis, With a Study of 500 Cases of the Disease, Observed in Private Practice.—L. Duncan Bulkley (*Journ. A. M. A.*, November 17, 1906).
2. The Value of an Absolutely Vegetarian Diet in Psoriasis.—L. Duncan Bulkley (*Journ. A. M. A.*, February 22, 1908).
3. Neuere Erfahrungen und Anschauungen ueber Psoriasis.—P. G. Unna (*Medizin. Klinik*, 1906, No. 39-40).
4. Therapie der Psoriasis.—E. von Düring (*Deutsche Medicinische Wochenschrift*, 1905, No. 51).
5. The Treatment of Psoriasis by the General Practitioner.—Dreuw (*Journ. A. M. A.*, June 19, 1905).
6. The Treatment of Psoriasis.—F. H. Barendt, Liverpool, 1907. Monograph.
7. Apercu Sur Le Traitement Des Diverses Formes de Psoriasis.—L. Brocq (*Le Progres Medical*, 14 Decembre, 1907).

Psoriasis has always been, and still is, considered one of the most obstinate diseases of the skin. In fact, the general belief is, even today, that the disease is incurable. All agree that it is often possible to remove the lesions, under proper and energetic local treatment, but the tendency to a recurrence is so strong that the disease is regarded as incurable, even by most dermatologists. It is therefore encouraging to notice that during the last few years some noted dermatologists in Europe and in this country have come to another view, and, reasoning from different standpoints, now consider the disease as curable. However, all of them acknowledge that the treatment has to be kept up for a long time.

The reason that most cases of psoriasis never get well is because physicians and patients practically always discontinue the treatment as soon as the eruption has disappeared. The patients fall into their old habits and mode of life instead of keeping up the necessary hygienic, dietetic and medicinal treatment for a long time in order to accomplish a permanent cure.

The two papers in which the standpoints mentioned above are most clearly defined, are those of Bulkley (1 and 2) and of Unna (3). Bulkley accepts a micro-coccic agent as the direct exciting cause of the separate lesions; not a specific microörganism, but probably one or more of the organisms always present in the skin. He bases his opinion on the clinical appearance and mode of development and extension of the lesions; also on the parasiticidal action of all the remedies used in the external treatment of the disease. He does not believe in a hereditary tendency directly, but in his opinion a hereditary weakness of the tissue may be present, rendering the skin more susceptible to the exciting causes of the eruption. Doubtless a faulty metabolism is at the bottom of every case of psoriasis, making the soil fit for the exciting cause. It is therefore necessary to study the patient carefully and to bring his constitutional condition up to the normal by dietary, hygienic and medicinal treatment. No specific remedy exists. Sometimes antisyphilitic treatment is of benefit; in other cases arsenic or nitric acid internally; then again iron, cod liver oil or alkalies have a favorable effect, all depending upon the constitutional condition of the patient. In all cases alcohol and other stimulants, meat and sweets, spices and highly seasoned food, are injurious and a vegetarian diet, if possible absolutely, is of the greatest benefit to the patient. Bulkley mentions several cases in which the eruption disappeared under the proper internal treatment and a vegetarian diet. However, external treatment is of great value also and should be used constantly from the start, in combination with the dietary and internal treatment. Treating the patient in this way for at least two years, we may have good hope of curing the disease, especially if the patient does not fall into his old, injurious mode of life.

Unna criticises the general opinion that psoriasis is a disease, taking an isolated place in the system of skin diseases, far from eczema. The numerous forms of the eruption, the localization, the subjective symptoms, the association of psoriasis and typical eczema often met with, the fact, that the remedies used in psoriasis are also of value in eczema, convinced him that psoriasis belongs to the eczematous eruptions and is simply the extreme form of dry eczema. The histological changes in psoriasis and eczema are practically the same and therefore he puts psoriasis as well as eczema in the class of parasitic affections of the epidermis. He does not consider the disease as incurable. The treatment, however, must be radical and carried out for a long time with

antiseptic remedies. It is not only necessary to make the visible eruption disappear, as is usually done, but after that radical treatment of the locations of predilection must be continued for a long time. In these locations—scalp, elbows and forearms, knees and legs—nests of the causative agent are left and deep seated. From here fresh crops of eruptions take their start. A regional treatment of these places is therefore indicated after the ordinary treatment and must be carried out systematically for a long time after the visible eruption has disappeared. In this way psoriasis is curable; it only requires the coöperation and entire energy of the physician, the patient and his surroundings. Diet and internal treatment are not considered to be of any importance. Arsenic often has a good effect, but never cures a case and should not be considered as a specific. To get rid of the eruption, Unna advises the use of chrysarobin and pyrogallic acid in ointments; and for the regional treatment Dreuw's ointment and Unna's peeling collodion.

In Von During's paper (4) great stress is laid upon hydrotherapy, sweat cure and tar applications. He does not consider internal treatment as of any value, but advocates, in acute cases, a milk diet as being of great benefit and in all cases a limited diet without stimulants should be followed. He treats his patients by producing profuse perspiration in a hot air cabinet for about 10 to 15 minutes. The patient is then brought under a warm douche for one minute, followed by a cold one for a few seconds. After drying and rubbing the patient is wrapped in a woolen blanket and put to bed. Another treatment carried out by von During and from which he has observed very good results, is the tar-bath. The patient is rubbed with liquid tar and put in a hot bath for 15 minutes.

The ointment of Dreuw (5), which has been used successfully everywhere, since he published the formula, consists of:

Acid. salicyl.	10.
Chrysarobin	20.
Ol. rusci (birch tar)	20.
Sapo viridis	25.
Vaselin	25.

The good results obtained from the use of this ointment is due to the happy combination of the different ingredients, as it contains keratolytic, reducing, macerating and antipsoriatic properties of great strength. The treatment with this ointment is carried out as follows: The ointment is applied daily for 4 or 6 days by the aid of a stiff brush to the affected parts and after it has dried somewhat, some simple dusting powder is applied over it. On the fifth or seventh day the patient starts taking a hot bath daily, rubbing in vaselin after the bath. The psoriatic patches disappear, as a rule, soon after the first cyclus. If not, the same course is repeated. The chrysarobin irritation, which handicaps us in our treatment of psoriasis with other chrysarobin ointments to such a great extent, does hardly any damage to the normal skin when using Dreuw's ointment. The diffuse staining of the skin is also limited to the area of application. Very favorable reports upon the use of this ointment have been made by Unna and the late Lassar.

Barendt (6) divides the treatment of psoriasis into three stages: the preliminary stage consists in removing the scales, which is most easily accomplished by the use of sapo viridis rubbed in "ointment fashion." The next morning a hot bath is taken and the scales removed by scrubbing.

For parts covered with hair the spiritus saponis alkalinus is the most suitable application, while, if the scales are thick and greasy, ether may

be added. The preparation is well rubbed in, left over night and next morning followed up by a vigorous shampoo. In the remedial stage chrysarobin, notwithstanding its drawbacks, is the most efficacious remedy, using it as a 4 per cent ointment, rubbed in twice daily and followed up by a dusting powder. As soon as the eruption turns white and the surrounding skin red, he intermits the chrysarobin and uses ung. hydrarg. ammoniati, while this latter ointment is used on scalp and exposed parts exclusively. In obstinate cases 2 to 4 per cent salicylic acid is added to the chrysarobin ointment. To prevent new crops of eruption—prophylactic stage—the writer treats the sites of predilection—mentioned above—for a long time with milder ointments. Arsenic should be given during attacks and for a long time after. Exercise should be taken freely, as psoriatics as a rule do not perspire sufficiently. He thinks it of benefit to keep the skin slightly greasy by using olive oil externally after bath.

Brocq (7) uses in beginning psoriasis with pinhead sized lesions—psoriasis punctata—soothing applications like ichthyol, ichthyol zinc paste, etc., and later, while watching the inflammatory condition of the eruption, stronger ones: tar, pyrogallic acid and chrysarobin. He says psoriasis acts like scabies, where it is impossible to see all the lesions and it is therefore not only necessary to treat the visible eruption, but to treat the entire healthy looking skin as well. After the eruption has disappeared, Brocq continues the same treatment still for 4 to 6 weeks, and afterwards, for a year, the patient has to use milder applications twice a week. Vegetable diet and no stimulants are also thought by him to be of great benefit. The preparations best adapted for treatment of the scalp and exposed parts are, in the opinion of all the writers, mercury and pyrogallic acid, while the great benefit from the x ray in localized obstinate patches is acknowledged by every one of them.

In the opinion of the reviewer, Unna's view, that psoriasis is simply the most extreme form of dry eczema, is right, but he does not agree with Unna that internal treatment is of very little and diet of no value. Not only in psoriasis, but in eczema as well, he has noticed time and time again the great benefit of internal treatment and dietetic and hygienic measures, and he fully appreciates the view of Bulkley, that the soil is of the greatest importance in the development of psoriasis. What Bulkley has said in this regard as to psoriasis, is true too in eczema. Treating the whole patient to get the tissues in as normal a condition as possible and treating the eruption to get rid of the causative agent, must go hand in hand to get the best results as to a permanent cure. These principles have to be at the bottom of any plan of treatment.

THE CALMETTE OPHTHALMO-REACTION IN THE DIAGNOSIS OF TUBERCULOUS AFFECTIONS OF THE EYE.

A REVIEW OF RECENT LITERATURE.

By John Green, Jr., M. D.

1. Calmette (*La Presse Medicale*, June 19, 1907).
2. Stock (*V. Graefe's Arch. f. Ophthalm.*, Bd., 66, June 18, 1907).
3. von Pirquet (*Deutsch. med. Woch.*, May 23, 30, 1907).

4. Painblan (*L'Ophtalm. Provinciale,* August, 1907).
5. Brunetiere (*Ibid.*).
6. Brunetiere (*Ibid.* September, 1907).
7. Aubaret and Lafon (*Gaz. Hebdom. des Sciences Med. de Bordeaux,* August 4, 1907).
8. Stephenson (*Brit. Med. Journal,* October 19, 1907).
9. Stephenson (*Ophthalmoscope,* December, 1907).
10. Nance and Swift (*J. of Ophth. and Oto-Laryng.,* February, 1908).
11. de Lapersonne (*La Presse Medicale,* December, 1907).
12. Wiens and Gunther (*Muench. med. Woch.,* December 24, 1907).
13. Barbier and Renon (*Abstr. N. Y. Med. Jour.,* Feb. 1, 1908).
14. Kalt (*Soc. d'Ophtalm. de Paris,* October 8, 1907).
15. Trousseau (*Jour. de Med. et de Chirurgie,* January 10, 1908).

Since the announcement by Calmette (1) that tuberculosis in any form could be diagnosticated by the simple means of instilling a drop of a 1 per cent aqueous solution of dried tuberculin into the conjunctival sack, many observers have applied the test in cases now aggregating some thousands. For the information of those who may be unfamiliar with the "reaction," it may be stated that in tuberculous individuals, in from three to six hours after the tuberculin has been used, the semilunar fold and caruncle become reddened and the eyeball appears congested. The condition rapidly develops into an acute catarrhal conjunctivitis. The reaction attains its height in from 6 to 10 hours and disappears after 18 to 36 hours. The patient's general state remains unaffected.

The interest of ophthalmologists in this test has been twofold; first in the determination, description and classification of the ocular signs typical of the reaction, and second, its possible value in determining the true nature of many obscure ocular and intraocular affections, hitherto vaguely ascribed to syphilis, rheumatism, gout, etc. In this connection Stock's (2) paper is of interest. He found that in endogenous experimental tuberculosis there is a remarkable absence of anatomical characteristics. On the clinical side, he injected 76 patients suffering from chronic uveitis with "alttuberculin," and got a positive general reaction in 45, a local reaction in 7 cases. He believes that the presence of pale greyish hardly visible nodules in the iris near the minor circle, without much injection, points almost indubitably to tuberculosis.

It is obvious that the test is inapplicable in the presence of bilateral inflammations of the anterior segment such as conjunctivitis, keratitis, iritis, etc., as one eye must be wholly free from signs of external inflammation prior to the instillation. In such a contingency the "cuti-reaction" of V. Pirquet (3) would undoubtedly be preferable.

In two patients affected with tuberculosis of the conjunctiva Painblan (4) obtained positive results. In three eye cases suspected of tuberculosis origin—kerato-iritis, interstitial keratitis and exudative choroiditis—Brunetiere (5) found no reaction. In a subsequent communication, (6) he states his belief to the diagnostic value of the reaction. Aubaret and Lafon (7) employed the method in a series of 17 cases including tubercle of the choroid, phlyctenular disease, episcleritis, interstitial keratitis, lacrimal affections and optic papillitis in cerebral tumor. They are convinced that the reaction is of positive value in ophthalmology. Stephenson (8, 9) presents the largest series yet reported (between 40 and 50), including scleritis, episcleritis, lacrimal affections, iridocyclitis, iritis, choroiditis

and others. He is "under the impression that in the Calmette reaction we have been endowed with a most valuable means of recognizing tubercle."

Nance and Swift (10) have employed the method in 22 instances. Their cases include phlyctenular conjunctivitis and keratitis, sclerotizing keratitis, scleritis, choroiditis, interstitial keratitis, chronic conjunctivitis and papillitis. Positive reactions were obtained in 14 cases, negative in 8. These authors emphasize the propriety of a searching examination of the conjunctiva, cornea and fundus oculi and a determination of the vision prior to the instillation.

In his original paper Calmette (1) insisted upon the entire harmlessness of the method, declaring that the reaction invariably passed through its various phases rapidly and without sequelæ. Observations by others (not ophthalmologists, however,) seemed to bear out this contention. That the method may occasionally be productive of harm is the opinion of such well-known men as de Lapersonne, (11) Wiens and Gunther, (12) Barbier and Renon (13) and Kalt. (15) This aspect of the question has been critically discussed by Trousseau, (15) a translation of whose paper appears in the March issue of the INTERSTATE. (See Obiter Dicta from Foreign Journals.)

GENITO-URINARY SURGERY.

IN CHARGE OF
H. McC. JOHNSON, M. D.

UNILATERAL RENAL HEMATURIA DUE TO PYELITIS CYSTICA.—Haynes (*Annals of Surg.*, Mar., 1908).—The author reports a case of renal hematuria in which it occurred periodically for several years, nothing being discovered to account for it. Operation showed the kidney to be apparently normal, but on microscopical examination of it evidence of a long-standing pyelitis was found. At many points a condition resembling the early stages of pyelitis cystica was discovered. The possible sources of hemorrhage in this case were, first, the chronic venous congestion of the whole kidney, and, second, the superficial chronic inflammation of the pelvic mucosa, which had produced many new but poorly formed vessels. The exact points of origin of the hemorrhage were not discovered. Nephrectomy was performed and recovery followed. After a review of the condition, the author concludes in regard to treatment as follows: if the conditions in the tissues surrounding the kidney, if the state of the capsule or the kidney itself does not afford a fair inference as to the cause of the hematuria; if the symptoms of hematuria, pain and disability, have been steadily increasing under persistent medical treatment; if the other kidney has been proved to be sound; and if the patient and surgeon are not prepared to undergo a possible secondary nephrectomy, the kidney should be removed, because the lesion in such obscure conditions may be chronic pyelitis or a true form of angio-neurosis which are amenable only to the more radical operations.

OBSTRUCTION OF THE INTERNAL URINARY MEATUS BY FOLDS OF MUCOSA.—Jones (*Annals of Surg.*, Feb., 1908).—Several very interesting cases are reported by the author, in two of which a prostatic enlargement was thought to be causing the urinary obstruction, until operation revealed the true state of affairs. In the first case reported, a very

thin collar of tissue was found arising about the internal urinary meatus, in the shape of a horseshoe, with the opening of the shoe toward the pubes. This tissue had sufficient rigidity to cause it to stand erect about the outlet of the bladder; it yielded, however, to the slightest pressure, and collapsed into the opening, closing it like a valve. In the second case, a pedunculated tumor, the size of a very large pea, sprang from the bladder wall, just at the posterior margin of the internal urinary meatus. It dropped into and closed the opening like a ball-valve. Microscopic examination showed this tumor to be of prostatic origin. In two other cases, the obstruction proved to be a fringe of mucous membrane that grew all about the meatus, and dropped into and closed the urinary passage, but offered no resistance to the passage of the catheter. In still another case, the obstruction was due to a band, or fold, immediately posterior to the internal meatus, and encroaching upon it.

The Present Status—Two Years After the Original Report of Eighteen Male Cases of Röntgen Ray Sterility.—Brown and Osgood (*Am. Jour. of Urol.*, Oct., 1907).—From the study of these cases, the studies of others and their own experiments, the authors believe that the extent of injury from the Röntgen ray is directly proportionate to the amount of destruction of spermatogenetic cells in the tubules of the testis. The spermatogenetic cells of the tubules showed degenerative changes after exposure, in animals, though no estimate can be given as to the amount of exposure necessary to bring about this condition in man. There seems to be no direct relation between the cutaneous effects and those in organs beneath the skin. That some regeneration of the spermatogentic cells may take place after a time seems evident from the authors' present report. The eighteen cases reported two years ago represented fifteen cases in whom no spermatozoa could be demonstrated, and three cases whose seminal fluid showed a very few motionless spermatozoa. Two of the fifteen cases have not been examined since. Of the other thirteen cases, nine are shown now to be subjects of azoospermia; two have recently shown a large number of normal-appearing spermatozoa; two others have improved so far as to now show a few spermatozoa after diligent search. The three cases of oligospermia of the 1905 report are apparently normal now.

A Report of One Hundred Consecutive Perineal Prostatectomies Without a Death.—Young (*Jour. of Am. Med. Assn.*, Feb. 15, 1908).—This report is of great interest, in showing what may be done toward reducing the mortality of this operation in the hands of skillful surgeons. Young's practice has been to operate on almost every case, regardless of the gravity of complications, if the patient did not improve on preliminary treatment. He states, though, that none of these cases were in quite so bad shape as others previously operated upon, in which there was some mortality. In ten of the cases reported, vesical calculi were present with severe vesical infection. Three had pyonephrosis. Eight patients were very sick when the operation was performed, and two had apoplexy. In six cases the bladder was greatly distended showing over one thousand c. c. residual urine. Many had slight symptoms of poor renal function, and six were markedly uremic. Other complications which were present in these cases were cardiac murmurs of marked degree, pulmonary emphysema, and marked pulmonary tuberculosis of both lungs. The operation was performed within a few days after seeing the patient in nearly all cases. The author believes that preliminary treatment is rarely helpful. Among the cases there has not

been a single recto-urethal fistula, and only seven cases of epididymitis. The perineal fistulas have healed generally within two weeks and several as early as seven or eight days, three still persist. All of these are minute, pin-point openings, through which a drop or two of urine escapes only during urination. Incontinence of urine is present in but two cases, in both of which the patients are suffering from locomotor ataxia. A slight weakness of the sphincter has persisted for a time in several cases, but has usually completely disappeared within two or three months. Generally a necessity of voiding quickly when the desire to urinate comes on, is the chief complaint. As to the preservation of the sexual powers, a careful examination of 200 specimens removed has shown no evidence of the presence of an ejaculatory duct in more than two or three cases, and in all of these the operator was conscious of cutting too close to the well known location of these ducts. In five cases (in which erections had been absent for a long period before operation, there was complete restoration of the sexual powers after removal of the prostatic lobe. This was probably due to the removal of pressure upon the veru montanum and ejaculatory ducts. Prostatectomy is no longer to be considered an operation of necessity, a last resort. The fact that it can be performed with practically no danger and wtih perfect functional results, should lead to its early adoption, not only in cases of hypertrophy but in those of severe chronic inflammation and cancer of the prostate.

The Tub-Bath Treatment of Cystitis.—Hunner (*Jour. of Am. Med. Assn.,* Dec. 21, 1907).—The author reports excellent results in the treatment of cystitis in women by continuous drainage with the patient in the tub-bath. It is applicable for the patient with artificial vesico vaginal fistula made for the purpose of drainage, as well as for the unfortunate case of accidental or traumatic fistula. It makes the patient comfortable. These patients often enter the hospital in an anemic and nervous state, due to the suffering caused by the severe inflammatory condition of the pudendal region and thighs and the consequent loss of sleep, disturbances of digestion and drain on the nervous system. To place such a patient in a tub-bath is one of the most satisfactory measures in the realm of therapeutics. It saves an incalculable amount of labor. If such a patient is bed-ridden, the application of lotions and salves and the changing of pads, gowns anad bedding in the effort to keep the patient clean, requires the constant attention of a nurse. It is a most valuable adjunct in the treatment of intractable cystitis with or without the formation of a fistula. The force of the stream entering the bladder is regulated by the height of the supply tank, and the patient can modify the stream at any time by changing the caliber of the supply tubing by the use of an artery-clamp. The inflow naturally has to be regulated according to the sensitiveness of the bladder, and to suit the freedom of the outflow, whether it be through a second tube in the urethra or through a suprapubic or vaginal fistula. The author describes his arrangement of the tub for the application of his method of treatment.

The After-Treatment of Cases of Suprapubic Cystotomy: A New and Economical Method.—Irving (*The Lancet,* Dec. 21, 1907).—The author describes an apparatus for suprapubic drainage, which does away with the constant changing of dressings and its consequent discomforts, while it allows the patient more freedom in moving about in bed. The apparatus is described as follows: The principle is the simple one of a celluloid cap kept in place over the suprapubic wound by elastic press-

ure and possessing outlet tubes for the escape of urine. The celluloid portion is shaped like a straw hat, having a small rim slightly curved with an upward concavity and a crown that can be removed like a lid. It is fastened in place by means of a strap passing around the abdomen, to the ends of which elastic bands are fixed, and a tendency to slip upwards is counteracted by tapes passing from the lower end round the perineum and tied to loops in the abdominal strap. The elastic bands have eyes which fit over hooks on the celluloid cap or "hat." The hooks are attached on a level with the lid, so that the elastic pressure is exerted almost perpendicularly and keeps the rim in contact with the skin all round the wound, absolutely preventing leakage. The rim being curved, its edge does not indent the skin in any way. The urine escapes by two outlets, one on each side at the lower end of the apparatus, and passes through india rubber tubbing into a suitable urinal bottle which rests in the bed between the patient's legs. The lid is easily slipped on and off and has a hole in the center which is just big enough to admit easily a No. 24F catheter. The abdominal band is drawn to the requisite degree of tightness by means of strap and buckle, and it is best to see that it fits the patient properly before operation. Subsequently it will take only a few seconds to apply the apparatus. If continuous drainage is desired it is only necessary to pass a catheter through the opening in the lid and connect it with the supply tank. The flow being allowed to pass out through the tubes already provided for drainage.

New Management of Apparently Uncontrollable Hemorrhage From the Kidney During Nephrotomy.—Miller (*Am. Jour. of Surg.*, Dec., 1907).—The method employed by the author in checking hemorrhage during nephrotomy, when to all ordinary methods it is practically uncontrollable, consists in packing the divided kidney with gauze and compressing the two halves over the gauze packing by means of gauze strips around the kidney. It seems necessary that the kidney be dressed outside of the wound and the packing not removed earlier than forty-eight hours, when, if the hemorrhage is checked, the organ may be replaced in position.

Report of Two Cases of Sterility in the Male.—Hagner (*Amer. Jour. of Urol.*, Oct., 1907).—Two cases of sterility, following double gonorrheal epididymitis, and operated on by the method of Martin (anastomosis between the vas deferens and the head of the epididymis), seem to offer a great deal in these cases. In both cases reported by the author, repeated examinations failed to show any spermatoza in the seminal fluid previous to operation, while since then, normal spermatozoa have been demonstrated in both cases aand the wives of both men have become pregnant.

A Simplified Cystocele Operation.—Gilliam (*Jour. of Am. Med. Assn.*, Dec. 14, 1907).—This operation consists of:

1. An oval denudation of the most prominent part of the cystocele as in the old-time operation.
2. Dissecting flaps from the vaginal wall on either side of the denuded area with which to cover it.
3. Bringing the flaps together over the denuded area and suturing them to it and to each other.

The result is:

(A) The cystocele is effaced.

(B) The site of the cystocele is strengthened by an additional layer of fascia; that taken from the sides.

CORRESPONDENCE.

PARIS LETTER.

(FROM OUR OWN CORRESPONDENT.)

Can we at the present moment form a definitive opinion of the value of the treatment of cancer by radiotherapy? Although this therapeutic method is comparatively recent there is no doubt that to-day we are in a position to cull from the large number of published observations, certain facts from which interesting conclusions may be drawn. Imprimis it would be well to remark that the extraordinary optimism which formerly characterized the treatment of cancer by radiotherapy—an optimism due to certain remarkable successes—has fortunately given place to a more modest if not more exact opinion of its worth and value.

Cutaneous epitheliomas, even those in the ulcerative and cauliflower states furnish the best results. On the other hand in certain cases though a tumor which a microscopic examination declares cancerous, disappears completely and leaves but a very slight cicatrix, the results are not gratifying enough to class them with those which are regarded as the best. The reason for this is quite apparent: neoplasms which have spread beyond the derma are not as amenable to treatment as when confined to the skin. But despite the fact that radiotherapy is not decidedly efficacious in these cases it is nevertheless effective as a means of retarding the evolution of the tumor and completing the surgical treatment. The accessible mucous membranes such as those of the mouth, of the anus, of the genital organs, are benefited by the x rays. Certain tumors of the breast not adherent to the skin or to the deeper structures and not complicated by adenitis, disappear at the end of a number of seances. When a recurrence of cancer appears in the cicatrix as a more or less superficial nodule, radiotherapy is of service. Besides the superficial position of sarcomata the nature of these tumors renders them amenable to treatment by the Röntgen rays; on the other hand, epithelioma, on account of their peculiar position, do not yield to treatment so readily.

Lymphoid tumors, the glandular and splenic hypertrophies of leucemia, react in a truly marvelous manner to radiotherapy; but very often, it has been observed, there are recurrences.

When a carcinoma is extensive and deep and the rays cannot reach the diseased tissues, treatment is always without good effect; especially is this true in cases of carcinoma of the stomach.

A very interesting point in the treatment of tumors by the Röntgen rays is the changes the tissues undergo after exposure. The examination of recent burns which have resulted from rays of the greatest intensity, and the result of numerous histological investigations, have been the means of clearing up the greater part of this question. The x rays, it has been found, are the destructive agents of cellular tissue, but have this characteristic, that their action is purely elective. They attack the nucleus and protoplasm of the cells and destroy them without producing any inflammatory reaction. The epidermic cells are most sensitive to the action of the rays; the same might be said about spermatozoa, the ovarian vesicles, and all lymphatic cells. As to the neoplastic cells, their

sensitiveness is so intense that their destruction takes place without any disturbance of the cells in the adjoining tissues.

The undeniable success of radiotherapy in cancerous cases, and the hopes founded on this treatment, received a sad blow when both doctors and the public began to realize that instead of being a positive cure in all cases it could, under certain circumstances, be the instigating cause in the appearance of cancer. In support of this assertion, we have instances where doctors and makers of x ray machines, whose hands are daily exposed to the rays, have developed grave cases of radiodermatitis, following ulcerations, and later on complicated at times by epithelioma. Again, cases where death has resulted from accidents have been reported. Do all these untoward occurrences incriminate radiotheraphy? Are then all lesions resulting from some sort of irritation the real beginnings of a cancer? As to the fever which sometimes follows an exposure that has been too intense or too prolonged, it is undeniably an intoxication produced by the absorption of products from the destroyed cells. Therefore it seems to me to be going just a little too far to attribute the origin or the aggravation of cancer to radiotherapy.

The accidents which one may attribute to x rays are the erythemas, pigmentations, desquamations and ulcerations; these may be severe, are not readily cured and are inconveniences formidable enough to arrest further treatment. They are, above everything else, dangerous in ulcerative cancers of the skin and of the mucous membranes,—cases in which they may be provocative of a secondary infection.

We see, therefore, that while on the one hand good results follow the use of radiotherapy when experienced doctors attend the patients, on the other hand failure and complications follow as the outcome of inexperience. Above all, it is necessary to gage the duration and intensity of the rays according as the patient bears the treatment, and it is absolutely necessary to watch for those signs which when they do occur should make us at once stop further exposures. if accidents are to be avoided.

Radiotherapy ought always to be secondary to surgery in easily operated cases of cancer, but it should be its complement as a destroyer of those neoplastic germs in the wound which have not been reached by the bistoury. It is certain that, thanks to radiotherapy, we are better equipped than formerly to wage war against cancer, but this should not be overlooked, that its exact value should be our earnest study so that its judicious application may be made in all cases.

March 10th, 1908.

OBITER DICTA FROM FOREIGN JOURNALS.

VESICAL CALCULI FROM THE STANDPOINT OF MEDICO-HISTORIC ART.

Professor Eugen Holländer, the well-known author of "Medicine as Portrayed in Classic Painting" and "Medical Caricature and Satire" (Ferdinand Enke: Stuttgart) has an article of unusual interest, bearing the above title, in the *Berliner Klinische Wochenschrift* for February 3rd. The following lengthy extract gives an excellent idea of the research and erudition of the gifted writer:

As an indication of the slow evolution and practical adoption of surgical procedures in the Middle Ages, it would be well to mention that the few operations which had some popularity were really performed by empirics who followed certain specialties. Similar to Hippocrates, whose well-known oath forbade any surgical interference, the learned doctors and university-surgeons showed considerable timidity, if not fear, in connection with major surgical operations. Therefore it can readily be seen that with "the help of God," itinerary specialists, oculists, hernia and bladder surgeons rendered greater services than the savants of the medical faculty. But despite the fact that operations were frowned down by the regular doctors and surgeons, the impress left on the cultural development of the people, from the operations for cataract and lithotomy, was as great as that made by blood letting and minor surgery, procedures sanctioned by the regulars. As illustrative of this, the works of the Dutch and Flemish masters give decided evidence of predilections on the part of artists to portray the vocation of health-resort surgeons and medical charlatans. The mere mention of the many pictures by Rembrandt in which operations for cataract are shown, should suffice to convince us that the masters of the brush in the Middle Ages, though to a certain extent inspired by biblical subjects as they pertained to medicine—Rembrandt often availing himself of the subject of the healing of the blind Tobias—really got their inspiration from the work of the surgical quacks.

In the following pages—since the surgery of the kidneys on account of its rather recent adoption by physicians must be considered still a parvenu, with no claim whatever to an historical ancestry—I shall devote myself to a consideration of one of the most important diseases from an historic art standpoint—namely, stone in the bladder. The oldest and at the same time the most artistic example of an effort to memorialize this disease is seen on Tylman Riemenschneider's tomb of the Emperor Henry II. in the Dom at Bamberg. A photographic reproduction of this can be found on page 47 of my book, "Medical Caricature and Satire;" the picture being a copy of a plaster cast which is part of the medico-historical collection in the Empress Frederick Museum. The Emperor with his crown on his head is seen lying nude on his bed—in those days

Germain Colliot performing lithotomy before Louis XI. in the Severin cemetery. (From Holländer's Die Karikatur und Satire in der Medizin. Verlag Ferdinand Enke, Stuttgart).

the shirt was unknown—and standing near him is a Benedictine monk, holding in his right hand the large lithotomy knife and in his left, the enormous stone which he is about to present to his exalted patient. The drawn features of the Emperor and the wide-spread toes betray the intense suffering recently undergone. A striking feature of the group is a wonderfully conceived and executed figure typifying Medicine, sorrowfully contemplative, because of the uselessness of asking for help.

Almost at the same time that this South German sculptor was working in the Dom at Bamberg on the tomb of the German emperor, Louis XI. of France, decided to allow Germain Collot to operate on him for stone in the bladder. Circumspect as this crafty king always was, he took the precautionary measure to subject some one else to the operation first; therefore in January, 1474, he repaired to the Severin Cemetery where one of his subjects, supposably a criminal condemned to death, underwent the operation. This dramatic scene was immortalized for us in a painting by Rivoulon some 400 years later and, but for the genius of this French painter, posterity would have no means, save an historical note, to form a true idea of the significance of the operation. (See illustration.) Par parenthesis, it is well to note here that the first lithotomist of whom history makes mention, in the famous family of lithotomists, the Collots, was Laurent Collot who had acquired a knowledge of the workings of Mariano's Apparatus Magnus from his Roman friend Octavian de Ville, and strange to say it was again a Henry II. but this time of France, who urged this physician to settle in Paris as his surgeon-in-ordinary. This title was inherited by Collot's sons, of whom Ambroise Paré relates that they gave him many calculi for his collection.

From this time on the secrecy surrounding the operation for stone in the bladder was swept away, and already in the sixteenth century we find, on the signs carried around in the market-places by the criers of traveling doctors, notices to the effect that they (the doctors) pride themselves on their skill as operators for stone "with the help of God." Should the reader desire information as to the thorough knowledge and the great urological skill of any one of these non-academical practitioners, I would advise him to read George Bartisch's illustrated book, because "in it he will find reports, experiences and instruction, in detail, about the excruciating pains caused by stone in the bladder," to use the author's own words. George Bartisch also wrote a celebrated work on the eye. His completed treatise on "Operations for Stone in the Bladder" finished in 1575, remained in manuscript until 1905 when Dr. Otto Mankiewicz caused it to be printed. In the printed book are reproduced the author's original illustrations of highly artistic instruments and of many operations. Of the last representatives of the traveling specialists originating in the ranks of the laity, we find a number of pictures in black and white of Frére Jacques known as the lithotomist, Jacques Boilieu, who flourished at the end of the 17th century and who was the first operator to make a lateral incision along the catheter, a procedure perfected later by a Hollander named Rau; and of Frére Cosme who lived a hundred years after, and achieved fame on account of the protected

lithotomy knife (lithotome-caché) and his suprapubic cystotomy (sectio alta). The prints of these two lithotomists in monk's garb, evidently made, at the time, for advertising purposes, impress one rather ludicrously since both are represented, despite their priestly accoutrements, with large lithotomy knives in their hands.

At about this time, academic surgery—the surgery endorsed by the various medical faculties—underwent a change in all countries; that is, it abandoned its doctrinaire and conservative characteristics and as a result of this, a less belligerent attitude was taken toward health-resort doctors and empirics. In a word, with the recognition of the quacks, old and narrow theories sooner or later lost their exclusiveness, thereby taking a new lease of life. In a large picture at Amsterdam, painted by Master Quinckard in 1737, are represented the various members of the surgical guild in session; delivering a discourse to them is Abraham Titsingh, a self-made surgeon and later on, state-lithotomist of Holland. Needless to add his address is on the subject of lithotomy and that it was highly interesting, the large number of stones and instruments shown, leaves no doubt. (See "Medicine as Portrayed in Classic Painting," page 71.)

All the cleverness attaching to the skill of the lithotomists and the attention given to the care of the peritoneum and the danger of hemorrhage, was made light of by a daring act on the part of a young Hollander. Driven almost insane by excruciating pain, he thrust a knife into his bladder and, unassisted, seized the stone and drew it out. Despite this act of heroism by which he showed that a hemorrhage is not such a bête-noir after all, he never achieved further fame. But as an indication that his one heroic act has not been forgotten, the mention he has received in pictorial art, attests. In the Nuremberg Germanic Museum is a copperplate engraving of a knife next to which a stone is outlined; explanatory of this picture are the following lines: "Anno 1651 on account of pain and distress, Jan de Doot had the courage, by means of a self-inflicted wound in his abdomen, to draw a stone therefrom; this was done with God's blessing, on the fifth day of the fourth month." This engraving was cut out of a journal in which, no doubt, an article, descriptive of this generally accepted historical operation, was printed. Jan de Doot's portrait, in the Boerhaaveian laboratory at Leyden, tells the story of the self-extirpated stone which is the size of a goose egg. To make the photograph of the picture, which Professor Tendeloo sent me, more realistic, the complete history of the case, the original knife, and the stone, all still in existence, are almost an integral part of the whole, for their photographs rest against the frame. In passing, it is worthy of mention that at the Exhibition of the History of Medicine as Told in Art and the Handicrafts, held at Berlin in 1906, Professor van Leersum exhibited the original Doot collection.

HISTORICAL NOTES.

ÆSCULAPIUS IN ROMAN HISTORY.*

Although we are in the habit of speaking of Æsculapius as the god of medicine, it must be remembered that the ancients knew as many gods of that name as it pleased the students of mythology to create in their imaginations. It was the fate of all pagan deities that, subject to the caprices of the sculptors who carved them, or to the fancies of the poets who sang them, they were multiplied *ad infinitum*, and seemed to originate the one from the other. Cicero, in his essay on the nature of the gods, accounted for three Esculaps. Pagan mythology, which attributes to all of these about the same quality, fuses them for ordinary purposes into one personality.

Old monuments picture Æsculapius sometimes in the form of a serpent, as in the medal which has for its inscription, "Epidaurion" because it was struck at Epidaurus. This same animal and the cock are symbols which accompany him nearly always and the object of these allegorical

Fig. 1.—Aesculapian medal from Epidaurus.

figures was to designate the vigilance and the wisdom required for the successful treatment of disease. The stick is always seen in the hands of this god to denote that medical science is the support of life.

It was customary to sacrifice a goat to him, which animal was supposed to be always feverish. The crow was also sacred to Æsculapius, according to the old pagan superstitions which drew from the movements and cries of this bird prophesies for the future.

In times of plague solemn supplications were addressed to Æsculapius; and Titus Livius says that Rome at one time sent ambassadors to Epidaurus to invoke the assistance of this benevolent god.

Æsculapius originally came from Messene, a city in the Peloponnesus. Immediately after his birth his parents deserted him in the heart of a forest, where he was found by hunters who took pity on him and had him nursed by a she-dog. When he became old enough to be instructed he was placed in the care of the celebrated Chiron the Centaur, who taught him medicine, or surgery which were then synomymous. The pupil soon surpassed the teacher and, having acquired much learning, settled in Epidaurus, a city of Argos, to carry on his profession. He made several discoveries for the better treatment of disease and of

*From *Histoire Romaine*, by Catron and Rouille, vol. v., Paris, 1726.

wounds. He invented the probe and was the first to apply bandages to wounds. He also discovered purges and the art of pulling teeth.

As he lived in a period when they who distinguished themselves by great discoveries were deified, the people called him the son of Apollo and ranked him with the gods. Soon he had a temple of his own at Epidaurus. It was built outside of the city on a hill because the free open air was pleasing to the God of Health. There the priests who devoted themselves to the worship of the new god kept an adder, one of the kind which are easily tamed and which follow one everywhere, the bite being harmless, and the common people honored the serpent as if he were the god himself. Generally he had his hiding place between the feet of the beautiful statue which Thrasymede of Paros had carved. When the serpent came from his hole it was believed to mean that the cure of the sick was to be accomplished.

This statue was the master-piece of Thrasymede of Paros and was made of gold and ivory, seated on a throne to denote the mastery of this god over all sorts of disease. In one hand he held a stick, in the other a snake. By his side was a dog. The dog was there not only on account of the old story of the infant god having been nursed by a she-dog, but also because of the important part the dogs used to play, according to the assertions of Plutarch, in the cleansing of wounds by licking them.

Fig. 2.—Aesculapian medal struck by order of Antoninus Pius (d. 161 A. D.). This medal was made in remembrance of the arrival of Aesculapius at the Isle of the Tiber, as described by Livy. The large figure at the left is Chiron, the Centaur. Near him is a Satyr, or the god Pan, who holds a reed.

The statue also had a golden beard, but the tyrant Dionysius confiscated it, saying that it was not proper to attribute a bearded son to Apollo who himself had always been portrayed as a young man without a beard.

If the sick were cured they made a thank-offering of a cock. It was as in allusion to this custom that Socrates, condemned to die and therefor soon to be cured of all the ills of life, ordered the sacrifice of a rooster to Æsculapius.

When the Roman envoys came to Greece to invoke the aid of this god they were brought to his temple at Epidaurus, which had become very rich from the many thank-offerings for recoveries. The chief of the embassy was Ogulnius and it is probable that the Epidaurians sold their assistance pretty dearly when they acceded to the wishes of the Romans to take the serpent with them to Rome. It is said that, as by a miracle, the serpent made his appearance while the ambassadors were admiring the beautiful statue, and this was taken as a good omen for the happy outcome of their mission. The snake left the temple of his own accord, so the story runs, and, passing through the entire city, went straight to

the harbor and voluntarily entered the Roman vessel, taking refuge in the cabin of Ogulnius. This is not so incredible when one remembers that the serpent's master or tamer probably accompanied the Romans to their ship.

After several adventures, among which an escape and exciting recapture figure prominently, the embassy brought the serpent to Rome and a temple was erected for him, as being one with the god whom he represented, upon an island in the Tiber on which the poor animal had hid himself after his release from the ship.

There are several other instances on record of one of these adders having been taken from the temple and sent to some plague-stricken city. As late as the sixteenth century ruins of this temple were still to be seen, and the arrival of Æsculapius in Rome has been commemorated by the striking of a medal bearing the likeness of a snake. There is also, engraved upon a stone, the presentment of this god as a boy receiving some sort of healing plant from the centaur Chiron. Under the centaur is a Satyr, or the god Pan, holding in his hand his pastoral pipes.

Many superstitions of paganism bore relation to the power of the god of medicine. Hippocrates himself advised that a physician, in order to accomplish the cure of any disease, should first invoke the aid of Apollo, then of Æsculapius and his two daughters, Hygeia and Panacea.

BOOK REVIEWS.

HUMAN ANATOMY, INCLUDING STRUCTURE AND DEVELOPMENT AND PRACTICAL CONSIDERATIONS. By various authors. Edited by George A. Piersol. Illustrated. Pp. 2088. Philadelphia and London: J. B. Lippincott Co., 1907.

At first sight so much contained within a single volume, which numbers 2,088 pages, seems to be too bulky and cumbersome for practical use by students but the excellence of the book-binding and the readiness with which the book falls open at any page, soon establishes the usefulness of the fact that it is all contained within a single cover rather than being divided up. The book meets better, perhaps, than any book that has as yet appeared, all the requirements of a text-book of anatomy. The nomenclature is that employed by English-speaking anatomists, with a simplification of terms, running along with this the Basle nomenclature, the synonyms of the BNA nomenclature being placed in special type opposite the older terminology.

The contributors to the volume are Dr. Thomas Dwight, of Harvard University; Dr. Carl A. Hamann, of Western Reserve University; Dr. J. Playfair McMurrich, of Michigan University; Dr. George A. Piersol, of the University of Pennsylvania, on descriptive anatomy, general and special. Dr. Dwight has contributed the anatomy of the skeleton, joints and that on the gastro-pulmonary system and on the accessory organs of nutrition. The sympathetic nervous system, as well as the cerebrospinal nervous system, are described by Dr. Hamann; the muscular system, the blood vessels and the lymph system are described by Dr. McMurrich; histology and embryology are described by Dr. Piersol. An especially important part of the work is that on surgery, which is made practical, from an anatomist's standpoint, by Dr. J. William White and Dr. J. R. Barton, surgeons at the University of Pennsylvania. The illustrations in the work have been largely done by Dr. John C. Hicler, of Philadelphia. There are 1522 original illustrations appearing for the first time. In all there are 1734 illustrations, many in colors. The diagrams of the central nervous system are perhaps fewer in number than might be desired.

Further comment upon this magnificent work seems unnecessary, as the character of the contributors makes it stand as a book of unparalleled merit among American publications on general anatomy.

OUTLINES OF PSYCHIATRY. By Wm. A. White, M. D. Nervous and Mental Disease Monograph Series No. 1. The Journal of Nervous and Mental Diseases, New York, Publishers.

This is the first volume of a series of monographs on nervous and mental diseases edited by Dr. Smith Ely Jelliffe. This series aims to supply short treatises on subjects of interest to those in these specialties. The idea is a good one and has been attempted many times before, especially in some of the German publications. The monograph under consideration is an attempt on the part of Dr. White to present the subject of psychiatry in a brief form and in a readable way so that students can follow the lectures easily. It is in the nature of the *leit faden* so popular in Germany, and in a measure is a glorified development of our own compends. For a student's text-book this monograph can be said to be a success, for it possesses the prime requisites of a student's book—clearness of statement, clear arrangement of material and the avoidance of mooted questions. If we grant that this is a good text-book for students, we do not admit that it is a good example of a monograph for the specialist, which is the avowed purpose of this series. It seems that the notion underlying the publication of the series was allowed to relax in the instance of the work we are considering and it is to be hoped that the future publications will supply the need which is indicated in the prospectus. The crying need for a text-book on psychiatry in English, is one that will include case descriptions as illustrative of the text. That psychiatry is a clinical subject seems to be forgotten by the majority of writers on this subject, and in this book there is no indication that psychiatry deals with people who have diseases of the mind. As a text-book for students, White's psychiatry is a good book. Its limitations are those of such a work. For the student of psychiatry to whom this series is addressed, the book fails of its purpose, because it is largely a restatement of Krapelin, and Krapelin deserves to be in the hands of the student of psychiatry in its original form.

DISEASES OF THE LARYNX. By Harold Barwell, M.B., Lond., F.R.C.S., Eng., Surgeon for Diseases of the Throat, St. George's Hospital, Laryngologist, Mount Vernon Hospital for Diseases of the Chest, Consulting Surgeon for Throat and Ear Diseases; Cripples' Home for Girls, Consulting Laryngologist, National Association for the Establishment and Maintenance of Sanatoria for Workers. London: Henry Frowde and Hodder & Stoughton. Oxford University Press, New York, 1907.

The text-book with the above title is a welcome addition to the physician's library for the reason that aside from the subject which, by the way, is cleverly handled, the literary quality and the general make-up—the thick, unglazed paper, the large print and the almost entire absence of footnotes—should bespeak his favor. As to the book itself, though it makes no bid for originality, a perusal of the pages conveys to us unmistakably the thought that here we have what is frequently absent from text-books—the great interest which attaches to the contents of even a medical book when an author's personal experience is stamped upon it. Where so much is good it would be doing the author an injustice to single out any one chapter as being superior to another; nevertheless, we cannot refrain from calling the reader's attention to the chapters on Tumors and the Neuroses as instances in which the author, in our judgment, reaches the high-water mark of his scientific and literary perfection.

SEXUAL PROBLEME. Neue Folge der Zeitschrift "Mutterschutz." Herausgegeben von Dr. Max Marcuse. Preis per Halbjahr 3 Mark. Verlag von J. D. Sauerlaender in Frankfurt a. M.

Proper information concerning the "sexual problem," agitation for thorough changes in the "sexual ethics" and in the popular views concerning "morality," etc., are topics so widely discussed at present in Germany that the publisher of "Mutterschutz" has seen fit to change the name of his publication and limit its pages to articles dealing with the intricate problems of the sexual life. It can be assumed that many American physicians will be interested in this new journal.

HANDBUCH DER FRAUENKRANKHEITEN. Von Professor M. Hofmeier. Mit 268 Abbildungen im Texte und 10 Tafeln. Price: M. 14.00. Verlag von F. C. W. Vogel in Leipzig.

In its present form this well-known text-book appears as the fourteenth edition of the text-book on diseases of the female genitalia, first edited by Karl Schroeder. Ever changing with each new edition, a complete series of this work, which has proved so extremely popular with German students and teachers, actually represents a historical document of the development of gynecology. This 14th edition is in many essential features different from the preceding ones. Advance of science has necessitated thorough changes in the text; the rapid improvement in the technique of reproduction of colored illustrations, together with the desire of both the author and publisher to keep this work abreast with progress, led to the alteration of the majority of illustrations.

American literature contains some splendid works on gynecology, but certainly none superior to this latest edition of Schroeder's famous text-book.

DISEASES OF THE NOSE. By Ernest B. Waggett, M.A., M.B., B.C. (Cantab.)., Surgeon to the Throat and Ear Department of the Charing Cross Hospital; Surgeon, London Throat Hospital, and Throat and Ear Department, Great Northern Central Hospital. London: Henry Frowde and Hodder & Stoughton. Oxford University Press, New York, 1907.

A practical treatise, well illustrated, on diseases of the nose should not fail of an audience with American readers. Especially good are the chapters on Adenoids and the Adenoid Facies, for they sum up for us a number of practical points somehow overlooked in works of greater magnitude. The lucidity of the text is such that one would think further illumination unnecessary, but this is not the author's idea, for the illustrations made expressly by him to explain the text, are as expressive as the writing and cannot fail to be the means of familiarizing the reader with the features he is likely to meet with in practice. Altogether the book has much to commend it on the score of saliency and terseness.

ABEL'S LABORATORY HAND-BOOK OF BACTERIOLOGY. Translated from the Tenth German Edition by M. H. Gordon, M.A., M.D., Oxon., B.Sc. With Additions by Dr. A. C. Houston, Dr. T. J. Horder and the translator. London: Henry Frowde and Hodder & Stoughton. Oxford University Press, New York, 1907.

The English translation of this popular German book in the Oxford Medical Manuals will undoubtedly bring home to English and American readers the fact that a text-book to be of value need not have the discursive qualities of our usual medical publications. While the author modestly disclaims the honor of having written a text-book—he calls it a guide to practical laboratory work—its contents are practically of the same worth as that of more elaborate books on the same subject, with this additional qualification that brevity, in this case, stands for much in enlightening not only students but physicians, apothecaries and chemists.

THE MELLIN'S FOOD METHOD OF PERCENTAGE FEEDING. Published by Mellin's Food Company, Boston.

It is not our custom to mention in this column "trade books"—books published by manufacturers for advertising purposes—but this book, recently from the press of the Mellin's Food Company, contains so much that is available for the busy doctor that is not to be found in general books of reference, and shows such painstaking experiment and research in its preparation, that we are satisfied our readers will be pleased to have it called to their attention. The directions for preparing creams, top-milks, bottom-milks, whey, etc., exhibit a great amount of expert work covering the subject very thoroughly; these alone should be of great value to physicians. The tables of formulæ for feeding mixtures for infants, include almost every desired combination, through a wide range of variations. The object of the book is to save the busy practitioner the computations necessary for the determination of the percentages of nutritive constituents of any selected formula and to enable him easily to change the ingredients in said formula to any proportions desired.